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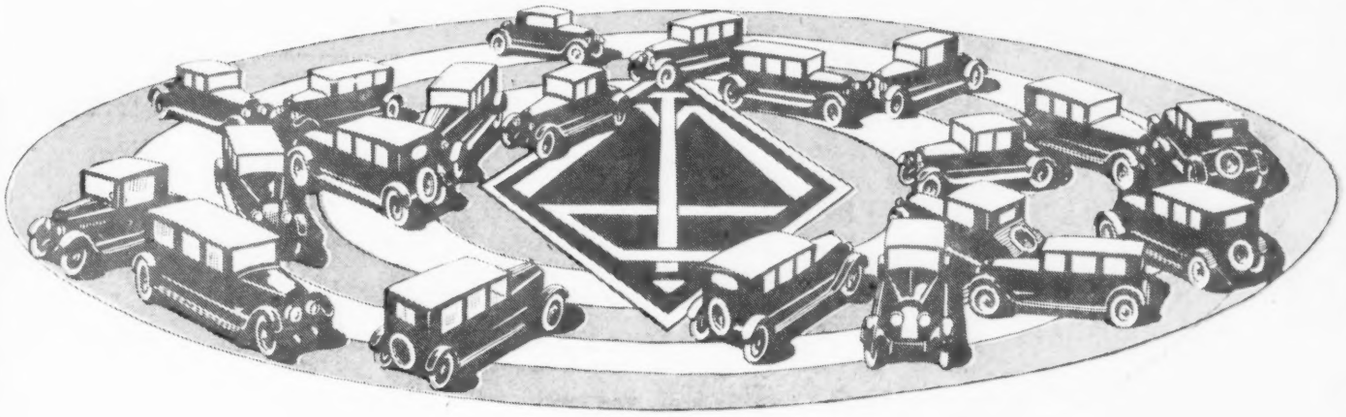

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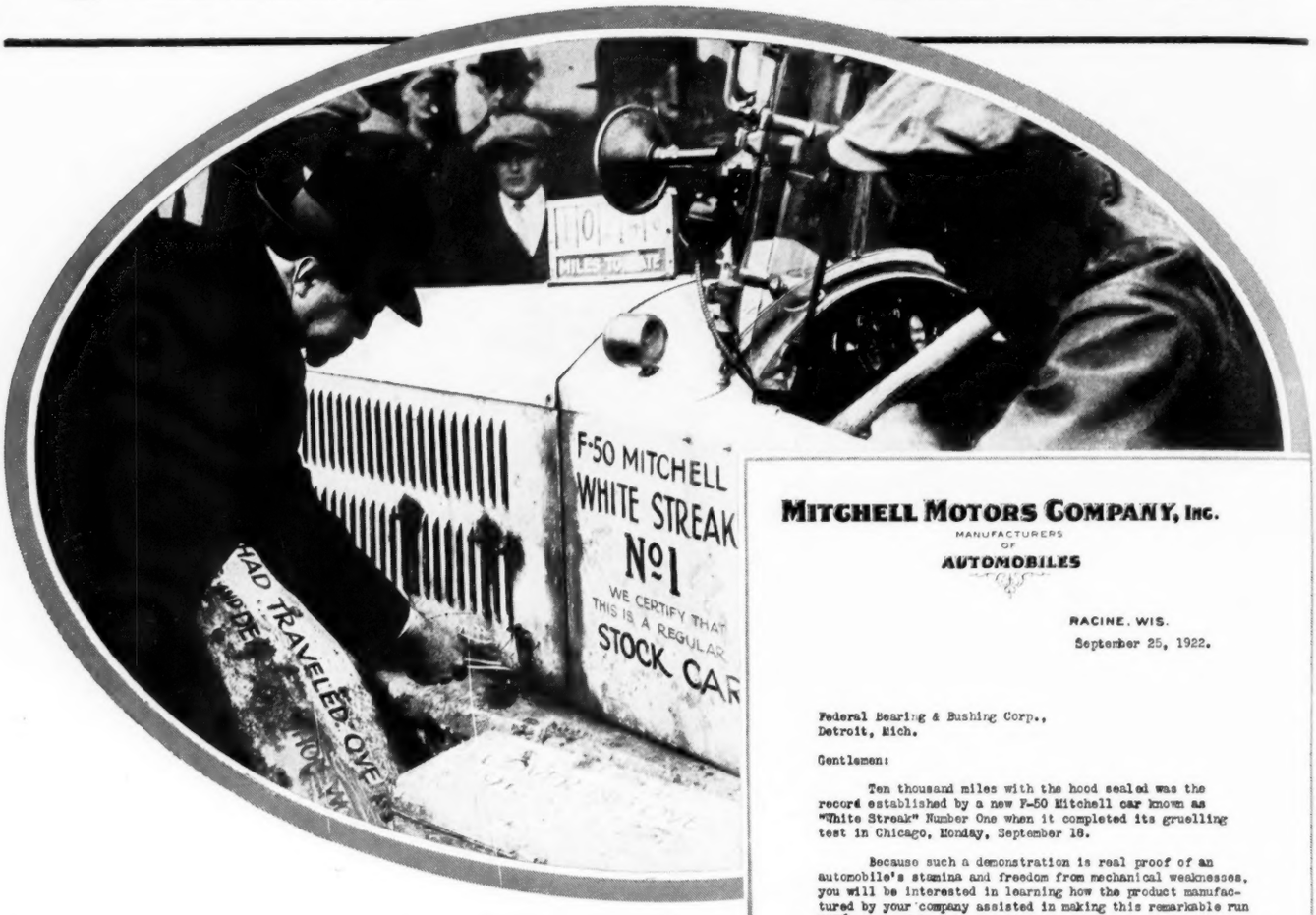
# FEDERAL BEARINGS

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**MITCHELL MOTORS COMPANY, INC.**
MANUFACTURERS
OF
**AUTOMOBILES**

RACINE, WIS.
September 25, 1922.

Federal Bearing & Bushing Corp.,
Detroit, Mich.

Gentlemen:

Ten thousand miles with the hood sealed was the record established by a new F-50 Mitchell car known as "White Streak" Number One when it completed its gruelling test in Chicago, Monday, September 18.

Because such a demonstration is real proof of an automobile's stamina and freedom from mechanical weaknesses, you will be interested in learning how the product manufactured by your company assisted in making this remarkable run 100% successful.

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We are proud of the record that the new Mitchell F-50 has made for itself in this and other demonstrations which have covered more than a million miles during the past four months, and we attribute a goodly share of the success of our car to the bronze-backed bearings made by the Federal Bearing and Bushing Corp. which we use as standard equipment for both crankshaft and camshaft.

When an examination of "Ten Thousand Mile Sealed Hood Car" Number One was made by our engineering department at the conclusion of the run, we found that the Federal bearings were as tight and sound as new.

Very truly yours,

MITCHELL MOTORS COMPANY, INC.

P. J. V. Batenburg,
Chief Engineer.

PJB:MCJ

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AUTOMOTIVE INDUSTRIES
The AUTOMOBILE

VOL. XLVII NEW YORK—THURSDAY, NOVEMBER 23, 1922 No. 21

# "What's Wrong With the Truck Industry?"

**Vital problems must be faced courageously and solved. Among most menacing are ruinous trading allowances and outlandish credit terms. Small assemblers must circumscribe markets and stop seeking national distribution or failure is possible.**

By James Dalton

"WHAT'S the matter with the truck industry?" A lot of tired business men are asking themselves this question. In fact, they don't have to ask it of themselves. It haunts them by day and it gives them nightmares when they're asleep.

There are a good many things the matter with it, but none of them are incurable. The manufacturing is well done. There is a long list of companies making commercial vehicles of almost equal value in construction, design, durability and economy of operation.

Nothing is wrong with American trucks simply as trucks.

Most of the evils which have arisen in the industry have to do with distribution. The most immediately menacing are cut throat trading with ruinous allowances for used vehicles and ridiculous credit arrangements.

Another is the attempt of small companies which should be local assemblers to get national distribution. Such concerns cannot hope to compete successfully on a national basis with those which are strong financially and have built up strong, country-wide distributive organizations.

Anyone who attempts to plumb the truck market finds it bottomless. There is no such thing as a saturation point. There are none too many companies in the field to-day if they operate along sane lines.

Illustrations are potent in pointing morals. There is one company in Chicago which tottered on the verge of insolvency for months after the depression began because it was spread out too thin and was trying to cover the entire country. It began to concentrate its sales efforts in its own immediate territory and is now doing a splendid business.

THERE probably are many others in the same position. It is conceivable that the time will come when all of them will be strong enough to expand their sales organizations and meet competition in a broader field.

There are few towns in which there are not too many truck dealers. Few of them are doing any business and still fewer are making any money. Most of them are utterly unable to compete with the stronger concerns. Apparently the only method of competition known to them is the trading allowance. On this basis they are helpless. They seem to take it

for granted, also, that commercial vehicles can be sold only on a time basis.

The story is told of one dealer in a good-sized town who really had sold a truck. He took his contract and sundry other documents over to the prospect and told him that if he would sign on the dotted line all the preliminaries could be cleaned up in a day or so and he could get his truck.

"But why can't I just pay you the cash and get it over with without all that trouble," complained the prospect.

AFTER the dealer had been revived with a pail of cold water, the deal was closed. He had overlooked entirely the possibility that there is such a thing as selling a truck for cash. Dealers of this type just run around in circles and trade their heads off, financially speaking.

Suicidal trading allowances and failure to understand the rudiments of real truck merchandising are chiefly responsible for the sadly heavy mortality among commercial vehicle dealers.

No attempt should be made, however, to lay all the fault at the door of the dealer. It can't be done successfully. If there is to be any real reform in the way of trading on a sane basis, it must begin with the manufacturers. If their sales organizations were informed emphatically that the factories were opposed to any trading system which did not permit a reasonable margin of profit for the dealers they would be taking a long step toward a real reform.

No individual dealer and even mighty few distributors can compete successfully with the factory branch when it comes to making sales on a trading basis. All truck manufacturers will join whole-heartedly in a chorus of loud lamentations when the subject of ruinous trading allowances is mentioned. Some of them will hold up their hands in holy horror and protest that they are not parties to such a nefarious practice. But you'll find when you get out on the firing line that if they really think that statement true, they are not familiar with the details of their business.

If the factories want trading done on a sane basis they had better end some of their own practices. They shouldn't blame the dealer. In a good many cases they are responsible.

Truck makers are alive to the evils within the industry and they talk about them whenever they get together. Various kinds of palliatives are proposed but a major operation is required. They are perfectly willing to have the operation performed on the other fellows but they don't want to submit themselves to the surgeon.

The fact remains, however, that this canker in the side of the industry must be removed before it can enjoy as healthy a growth as it should. It stunts the profits of the strongest companies and it ruins the weaker ones.

As the situation stands to-day, when the owner of a truck wants to buy a new one, he sells his old vehicle to the highest bidder and pays the balance on his own terms.

Trucks are sound, essential merchandise. They are honestly built and Baxter Street methods should not be employed in their sale. There should be something in the way of standardized second-hand values. It has been demonstrated in the passenger car field that it is possible to work out usable plans to put trading on a sensible basis and it can be done in handling trucks. When an offer for a used truck is made it should be on a "take-it-or-leave-it" basis.

When this offer is made there should be only one consideration in mind. That should be its sales value to the factory branch or the dealer. There may be some excuse for handling used trucks on a cost basis, but there can be none for handling them on a loss basis.

This is one of the problems which must be faced courageously sooner or later by all manufacturers. There is another of even greater importance to the small producers of assembled commercial vehicles.

That problem is the scope of the market they can cultivate with profit. This is a subject of vital import to the parts maker for these companies constitute the major part of his market in the truck field. There is a legitimate and profitable field for these small concerns, but it isn't to be found in seeking national distribution.

**MOST of the evils which have arisen in the truck industry have to do with distribution.**

**The little fellows can't hope to compete on a national basis with those strong financially and with strong distributive organizations.**

**Parts makers are deeply interested in future policies of small assemblers. If local markets are cultivated intensively there are none too many in the field.**

**There is no saturation point for the truck market but fundamental errors must be righted before it can prosper as it should.**

Parts makers are alive to the situation and they are taking it in hand just as they did in the passenger car field a year or so ago. They believe that at least a part of the answer is to be found by the establishment of chains of service stations at which these truck assemblers can obtain all the parts they require to turn out their vehicles. These stations also could service the trucks after they were sold. It would not be surprising if various groups of parts makers were to associate themselves in the near future to establish such chains of service stations. In fact, the plan is even now under serious consideration.

Parts manufacturers are interested not alone in original equipment but in replacements. As the use of motor vehicles expands, the replacement market will constitute an increasingly important part of their business. They are seeking new outlets for their goods, just as are the makers of cars and trucks, and just as legitimately.

THE companies from which the assembler buys his parts are in a position to indicate the policy which he should pursue. If they feel the assembler is risking his capital and success by seeking too wide distribution for his products they can force him to circumscribe his efforts by cutting off his credit unless he follows their advice. If he eventually becomes strong enough to justify the cultivation of a larger field they would be foolish not to assist him, for it would mean larger sales for them on a sound credit basis.

As soon as an assembler decides to cultivate a local field there will be a very sharp curtailment in his overhead expense and in the cost of his marketing efforts. He will not have to allow heavy discounts to distributors and dealers, for one thing. He will find himself able to compete with the larger companies in the way of prices and he can handle the trading problem for himself instead of having it handled for him by dealers.

The prices of trucks have not been reduced in proportion to those of passenger cars. This has been due in part to heavy marketing costs, resulting chiefly from expensive trades. Whenever prices come down the market expands and this is one of the points parts makers have in mind.

Definitely deciding upon a circumscribed market is not sufficient, however. A market is of no value unless it is intensively cultivated. Intensive cultivation does not mean running around in circles calling upon the users of your product or the products of your competitors and trying to get them to add to their equipment. Even if you are successful in this effort it almost inevitably will mean a trade.

### Territory Must Be Studied

One new truck user is worth two old ones from the standpoint of the man selling commercial vehicles. New markets always are to be found if they are hunted diligently enough. When a company is localizing its sales efforts it can afford to study the problems of potential purchasers in that territory and sell them transportation.

There is a whale of a big field for trucks in vocational markets such as milk, packing house products and petroleum. There also is a very live and genuine market for buses. They can be sold both to independent operators and to local traction companies. Municipal governments almost always are in the market for trucks and so are contractors engaged in public works.

If a good customer of this kind can be found it would be much more sensible to sell him by making an attractive price and assuring good service than to lose money by making expensive trades. Granting long term credit is not a sin, either, provided the credit risk is good. There may be instances in which eighteen months is not too long, although it is a bad practice to give such terms.

There may be cases in which a company would do well to cultivate the farm market almost exclusively. Farmers are going to buy a lot of trucks, but they are going to demand a good price and good service. Their needs should be studied so they won't be induced to buy a three-ton vehicle when all they can use profitably is one of half that capacity.

These are some of the things that should be considered by the smaller assemblers who are trying to get too wide distribution for their products. There is no reason why they should give up in despair. Their production may look like a wart on a pickle compared with the total for the industry, but it may give them a very profitable business in their own neighborhood.

The truck industry can well afford to spend a lot of time and money on the study of various subjects, such as the importance to operators of keeping accurate records of operating costs. Such a system may mean the difference between a profit and a loss. Truck operators, as a rule, don't know any more about their operating costs than truck manufacturers know about their selling costs.

The sum total of the answers to all these questions constitutes the solution of the major problem of, "What's the matter with the truck industry?"

The answer isn't to be found, however, in discussion of such subjects as how long a term credits should cover and whether it is permissible in certain cases for a manufacturer to cut his list price in making a sale which promises many repeat orders on a profitable basis.

These things are merely symptomatic and don't begin to get to the root of evil. That is to be found, first, in cut throat trading and, second, in seeking national distribution when national distribution is not justified.

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# A Merit Factor Formula for Automotive Steels

HENRY CHANDLER, metallurgist of C. Harold Wills & Co., in a paper on The Steel Requirements of the Automotive Industry said that the adoption of a steel for commercial purposes is predicated upon two general questions—first, How will this steel adapt itself to the necessary manufacturing processes, and second, will the part, when made of this steel, withstand the forces, such as wear, breakages etc., that operate for its destruction? The answers to these questions are obtained through a survey of the mechanical characteristics of the metal.

The manufacture of certain individual parts has been developed into separate specialized industries, and there has been a corresponding development of special steels. This has been the case particularly with frames, fenders, cold headed bolts, disk wheels, bodies, etc. The needs of this group are met by standard carbon steels.

Another group of automotive parts calls for physical properties which are not attainable in carbon steels, and this necessitates the use of alloy steels. This group includes valves, ball bearings, magnets, armatures, hardened keys and the like. In the case of valves, for instance, it is necessary that the metal retain strength, hardness and toughness at high temperatures and withstand the corrosive and erosive effect of the products of combustion. To meet these requirements many special steels have been developed, such as high tungsten, silicon-chromium, cobalt-chromium and others.

Chandler distinguishes a third class of steels used in automotive construction, the steels used for the major parts such as the front axle and all the chief components of the power transmission train from the crankshaft back. The steels used for these parts, he says, may be truly called automotive steels.

### Tests for Automotive Steels

The paper then discusses the various tests applied to these automotive steels to determine their suitability for particular purposes. Dynamic tests have been suggested, but the great complexity of the factors involved have limited the application of this test, and at the present time automotive manufacturers depend chiefly upon the results obtained from (1) tensile tests, (2) Brinell and scleroscope hardness tests, (3) impact tests and (4) thermal and metallographic investigations. Suitability of a steel for any particular purpose seldom depends upon any one particular characteristic, and therefore what is known as the merit factor has been evolved which depends upon a number of these characteristics. Mr. Chandler gives the following merit factor formula for automotive steels—

$$\frac{\text{Mean breaking strength} \times \text{elongation}}{\text{K} - \text{Reduction in area}}$$

where K is a constant. The factor, he says, represents the amount of work done upon the steel in causing it to fail, per unit of steel involved. The properties of steels can be varied within wide limits by changing the drawing temperature and this merit factor offers a means of determining most advantageous drawing temperature.

# Automotive Equipment Association Compromises Closed Show Issue

**Convention decides to limit next show to members and specially invited jobber guests. Merchandising campaign is given renewed support. "One Salesman, One Dealer, One Million Dollars" slogan for next selling effort. To co-operate with S.A.E. on standards work.**

By Neal G. Adair
*Editor Motor World*

THE Automotive Equipment Association has gone through an experience of the kind that wrecks some associations and builds others. It has made the A. E. A. stronger than at any time in its history.

On the issue of the annual automotive equipment show —whether it should be an exposition by and for the industry or an exclusive meeting of manufacturer members' salesmen and jobber members' buyers—the manufacturer and jobber elements in the membership yielded for awhile to the biddings of selfishness, but finally worked out a compromise that will make next year's show a fairly representative trade event. Working out the compromise was one of the hardest tasks that ever confronted the association leaders, but they succeeded.

The A. E. A. held its seventh annual convention and its fourth annual business exhibit in the Chicago Coliseum, Nov. 13-17. The show was closed to all except members and their representatives under a ruling vigorously supported by jobber members, weakly opposed by manufacturer members and adopted at the last summer convention. The great majority of manufacturer members went into the convention determined that they would not exhibit in another closed show. They wanted a larger audience than the less than 200 jobbers in the 500 membership of the association. Jobber sentiment was not so clearly defined, though apparently a majority of the wholesalers felt that crowding of the show with outside jobbers deprived the member buyers of the attention to which they were entitled from the men in charge of the exhibits. The jobbers in great numbers clearly favored continuance of the closed show.

The convention opened menaced by the spectre of a deadlock which a vote, of course, would have broken because of the numerical superiority of the manufacturers on the membership roll. Such a vote would have been disastrous and it was a compromise, not a clear-cut open show vs. closed show issue, which came before the convention after many conferences among the leaders. The compromise keeps the show closed to non-member manufacturers. But non-member jobbers whose names are approved by the board of directors will be invited.

THE manufacturers were not willing to permit the sale of space to non-members should any be left after members' demands had been satisfied. There was little sentiment among the manufacturing element for an exhibit which might be called industry-wide. They felt that manufacturers desiring to show in this greatest equipment exposition should "get under the big tent" of A. E. A. membership. Many jobbers held a similar view regarding admission of non-member jobbers, but they stood unanimously by the compromise, which came from their side of the house, when the unyielding demand of the manufacturers for a show "open" for jobbers but "closed" for manufacturers became apparent.

Under the rule adopted, the 1923 exhibit, except for the exclusion of non-member manufacturers, will be a representative wholesale trade show. On the application of manufacturer members largely, no doubt, with some requests from the jobbing side, the A. E. A. directors will invite to the Coliseum from all parts of the country jobbers whose standards of business will pass approval.

This plan will do away with the exclusive feature which brought so much criticism upon this year's show. But it will not lift the exhibit to the high plane of an exposition of the automotive equipment industry, which can be accomplished by inviting not only reputable jobbers but high class manufacturers to participate.

THE A. E. A. is doing a constructive, unselfish work for the industry with its merchandising campaign. The movement aids the retailer while it promotes business for the manufacturer and jobber and inevitably non-member manufacturers and jobbers profit by it. The A. E. A. some day may see its show in the same light, using it not so much as a means of building membership and the individual businesses of its members, but as an agency for the promotion of the broader interests of the industry. Such a plan would make the exhibit a truly great wholesale show, one of the leading expositions of American business.

The adoption of the show compromise started the convention on a series of harmonious sessions which carried the A. E. A. to new heights of co-operative action. The merchandising campaign, leading constructive work of the association, was given renewed indorsement both by manufacturers and jobbers, promising a far broader and more aggressive activity in the next six months than at any time since the inauguration of the movement in the summer of 1921.

Association members agreed in large numbers to get actively into the merchandising campaign led by Ray

W. Sherman, broadening the market for the industry's products by assisting the retailer to realize more fully on the possibilities of service to his public with profit to himself.

The convention and show brought together the largest crowd ever assembled at an A. E. A. meeting. At one convention session the doorkeepers counted 1260 men, including a few more than 500 delegates representing the membership. In attendance at the convention and show—manufacturers, jobbers, manufacturers' sales managers and salesmen and jobbers' sales managers, salesmen and buyers—there were fully 1500 persons.

The show, too, set a new record. There were 215 exhibits as compared with less than 200 a year ago. They presented an inspiring array of the merchandise of the automotive equipment industry—garage equipment; including heavy machinery and the lighter tools; accessories for the car and truck, replacement items for all parts of the automobile and tools for resale to the motor vehicle driving public. Billions of dollars of plant investment, hundreds of millions of dollars of annual production were represented in the exhibits, many of them brilliant examples of show merchandising, and among the jobbers in attendance there were represented many more millions invested in facilities of distribution.

EVEN with the restricted attendance of jobbers under the closed show rule, the exhibit was a better business show than previous ones.

Smaller attendance gave a greater opportunity for conference between manufacturers and jobbers and their representatives, and the jobbers, because they had initiated the closed show decision, apparently went out of their way somewhat to listen to the sales talk of the exhibitors and, in some cases, to sign distribution contracts and place orders. The bulk of business done, however, and the interest shown by jobbers was not based on sentiment but on the confidence expressed by the majority of jobbers that the gains in business during the past few months are to be continued through 1923.

A few manufacturers complained of light patronage but just as many reported business written far in excess of last year and the bulk of the exhibitors united in terming the show the most successful the association has held.

The gathering of manufacturers and jobbers in Chicago, particularly the assembly of jobbers, gave an opportunity for an interesting check-up on trade conditions. Allowing for the normal seasonal decline, they are improving steadily in nearly all sections of the country. Some of the Rocky Mountain States and a section of the Southwest are still suffering from restricted credit, and jobber business has been poor because of dealers' inability to finance purchases either of shop equipment or accessories. In both sections recovery is now in progress. In other sections jobbers are still finding it necessary to ship some goods C. O. D. And some business is lost because dealers and garagemen will not buy under this requirement. Generally throughout the country, however, dealers are beginning to get results in "asking 'em to pay."

THE general run of jobbers at the convention had done to 30 per cent more business, in tonnage, this year than in the same period of 1921. This gives them a dollars and cents result about equal to last year's and in some cases considerably better. Purchases of garage equipment have been on the upgrade for several months.

The A. E. A. chose as its new president H. Oliver, general sales manager of the Metal Specialties Mfg. Co., Chicago. The new vice-president is William E. Wissler, head of the wholesale automotive equipment department of the Herring Motor Co. of Des Moines, a large automotive concern with a passenger-car dealership and other interests. The new chairman of the board of directors is Earl V. Hennecke, general sales manager of the Moto-Meter Co., Long Island City, N. Y.

THE outstanding accomplishments of the convention were the plans for intensifying the merchandising campaign, benefiting the retail as well as the manufacturing and jobbing divisions of the industry, the perpetuation of the annual business exhibit and the welding of the two elements of the A. E. A. membership into a more effective working unit.

Speakers outside the industry who addressed the convention were Judge James H. Wilkerson of the United States District Court in Chicago and William A. Durgin of the United States Department of Commerce. Wilkerson's address was a plea for universal respect of the law and Durgin gave an illustrated talk on elimination of waste and simplified practices which prompted the A. E. A. standardization committee to change its name to the committee on simplified practices and to make preliminary plans for co-operation with the Society of Automotive Engineers and other organizations for simplification of manufacturing practices in the equipment field.

The merchandising campaign, which has been in progress sixteen months, has had vigorous support by only a minority of manufacturer and jobber members. The majority have left the work to the merchandising department of the association. The campaign was given a new start by concurrence in recommendations of the department.

The merchandising director's recommendation to the jobber members was for a campaign to assist selected dealers in building up their automotive equipment business. He urged that every jobber's sales manager arrange with his salesmen to select one dealer each as a likely prospect for intensified assistance over a six months' period beginning Dec. 1. The salesman would pay special attention to this dealer's sales work, helping him to select seasonably salable merchandise, display and demonstrate and ask motorists to buy it. Sherman said that if 1000 of the 4000 salesmen with jobbing houses of the A. E. A. would carry out the plan suggested he believed the aggregate increase in business, on a basis of a $1,0000 minimum gain for each dealer, would be $1,000,000. He suggested as the slogan for the campaign, "One Salesman, One Dealer, One Million Dollars."

THE suggestion met with a hearty reception in the divisional meeting of jobbers. A majority of the sales managers present said they would put the plan in force in their organizations.

Sherman's talk to the manufacturers' divisional meeting was a request for the support of sales executives to emphasize to the retailer how he can make profits selling or using the manufacturer's product. He made a special plea that every manufacturer member of the association get out at least one advertisement and one piece of printed or illustrated matter in the next six months devoted exclusively to this idea. A showing of hands indicated that a number of manufacturers were prepared to heed the request.

It was decided to get out, late in 1923, a second edition of the Universal Catalog, describing the products of the manufacturer members of the association.

The next annual convention and show will be held Nov. 12-17, 1923, in Chicago, and the 1923 summer convention will be held June 25-July 1, at Dixville Notch, New Hampshire.

# Sport Model Body Gains Fast in General Popularity

**Standard phaeton loses position as all-purpose type with ascendency of closed car and joins special use class. Sport model fills gap. Many manufacturers bring out such cars this fall.**

By George J. Mercer

A MAJORITY of automobile manufacturers this fall have brought out sport type open bodies. The popularity of the closed car, which has been found by the public to serve a multitude of purposes, has driven the standard phaeton from its accepted position as the all-purpose car. The gap is being filled by this new sport type, which is lighter in weight and fleeter in appearance.

The sport model is very fully equipped with all the conveniences for driving. It has the fittings ordinarily found on special custom body jobs, which make the car attractive in appearance. In spite of price reductions these new models are far better equipped than standard phaeton models have been in the past.

The first sport models which appeared had steps in place of running-boards. This innovation was not continued to any extent. The appearance of steps in place of running-boards has been simulated by the use of bright metal grills on the side of the splasher above the running-board. Thus the reflection of advance design may be seen.

The bodies are not noticeably shorter, consequently a trunk can be used or not as desired. When the trunk is left off the trunk guards serve to brighten up the car and enhance its appearance. In general the bodies are made narrower in the rear and the use of wheel-housings is obviated. Fenders are fastened flat against the body sides.

Fig. 1 shows a composite drawing of general design. One feature is shown which appears to be coming back into use, and that is the molding along the top of the body side. Another feature is the strip on the top line of the body from the curtain to the front of the forward door to prevent injury to the paint surface. Some manufacturers use a metal strip or an aluminum casting for this.

Wood is the ideal material for the top strip if it can be protected from the elements. Use of wood permits a very good contrast with the body color and does not require expensive production equipment. Probably its use would become more general if manufacturers would furnish a preparation to keep it looking well.

### Side Moldings Tend to Reappear

Side molding may come into use again, as there is now a tendency in that direction. If the molding is rolled in the sheet and not attached afterward there is little difficulty placed in the way of painting.

The top shown in the illustration is the semi-clear vision type and is an improvement over the type which employs the use of gipsy curtains. Some manufacturers have replaced the black top material with a non-lustrous fabric. This material does not offer as great a contrast with the body color.

The hand operated cowl ventilator is now considered a necessity and has almost superseded the screw type. The sun-visor of fabric or metal and front and rear fender guards are now expected as regular equipment.

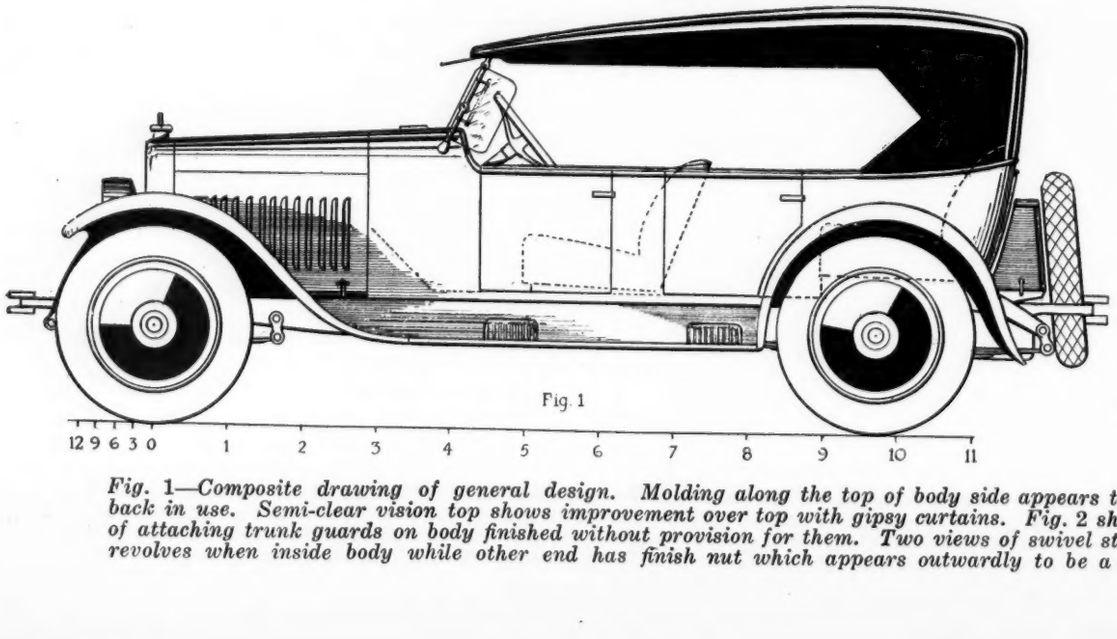


Fig. 1

Fig. 2

*Fig. 1—Composite drawing of general design. Molding along the top of body side appears to be coming back in use. Semi-clear vision top shows improvement over top with gipsy curtains. Fig. 2 shows method of attaching trunk guards on body finished without provision for them. Two views of swivel stud. Swivel revolves when inside body while other end has finish nut which appears outwardly to be a screw head*

# Some Examples of Sport Model Body Practice

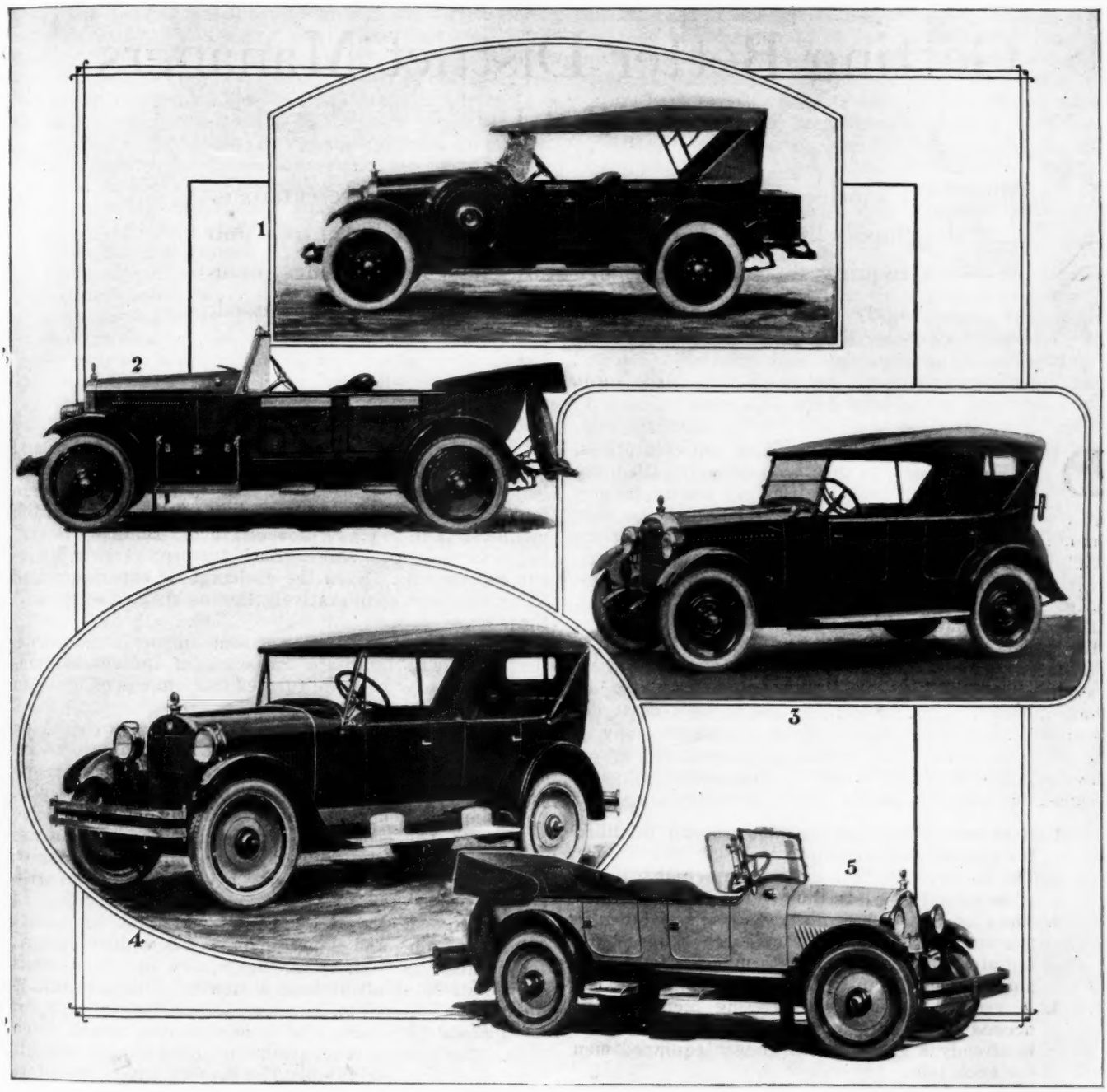


*Fig. 1—Nash sport phaeton mounts fifth wheel on runningboard. Metal step plates used in conjunction with runningboard. Fig. 2—Auburn carries trunk forward instead of customary rear mounting. Fig. 3—Columbia sport body. Fig. 4—Reo uses metal grills on side of splasher. Fig. 5—Oldsmobile sport with steps in place of runningboard*

Some sport models carry the tool box on the runningboard because the front seat is too low to afford space underneath. The latter place is also inaccessible. Carrying tools in the door pockets is satisfactory, but provision for only the lightest toois can be made.

Storage of curtains varies greatly. The best place is in a pocket in the rear of the front seat, but the cost of manufacturing the pocket no doubt may prevent its more general use. It is evident that cost of manufacture is not as great a factor as supposed, for even the medium priced cars are fitted with smoking sets, rear vision mirrors, footrests, robe rails and the like.

Conventional black leather is generally used for upholstery, but Spanish leather is quite common. Good springs for the seat cushions are found on all grades of cars.

Painting is a large item of expense because a variety of colors are used and striping is quite often employed. Lake and black, and blue and black, are the predominating sport body colors. These offer a very excellent background for extensive nickel trimmings.

Trunks and trunk guards show a wide variation in style. Fig. 2 shows a method of attaching trunk guards to a body that has been finished without provision for them. The lower figures show two views of a stud which is long enough to be cut off after being inserted. At one end is a finish nut, to outward appearance a screw head, and at the other end is a swivel which revolves when inside the panel. The trunk guard is also shown from the rear.

*Automotive Industries*
*November 23, 1922*

# Getting Better District Managers

## Part I.

**Factories seek more capable traveling sales representatives. Supply limited. Training probably necessary in future. Job requires a wide range of knowledge. Most sales managers actively working for improvement. Methods discussed.**

By Norman G. Shidle

DISTRICT managers, factory sales representatives, or traveling men, as they are variously called, are providing much food for thought among factory sales managers. Recognized as a vital link in the merchandising chain, these men have not been "hitting the ball" in a manner satisfactory to the manufacturers. Nearly every factory sales department is trying to devise means for improving their staff of district managers, either through new personnel or through increasing the effectiveness of the men now operating.

Different factories expect different things of their traveling men, but complete satisfaction is lacking all along the line. Various methods are being used to get better efficiency, and opinions differ as regards many of the points at issue. Most factory sales managers, agree, however, on a few major premises. Agreement is nearly general, for instance, on the following points:

1. **It is very difficult to get men properly qualified for district managerships.**
2. **The factory will have to do more actual training of men for these jobs than in the past.**
3. **The factory will have to lend more assistance in the way of basic market studies, checking of distributer and dealer performance, territorial analysis, etc., than in the past.**
4. **A greater number of traveling men will be needed in the future, despite the fact that there is already a great dearth of well-equipped men for such jobs.**
5. **The chief function of the district manager is to build distributers and dealers into real merchandisers.**

   **The district manager must be capable of helping distributers and dealers in the solution of any of the practical problems which arise from day to day.**
6. **The day of the district manager who devotes his time chiefly to getting distributers to take more cars has passed.**

   **If the distributing and dealer organization can be built into a really efficient merchandising machine, the distribution of cars will take care of itself to a large extent.**

Problems of finance, market analysis, production, sales quotas, procuring efficient traveling men, and many others, however, must be solved before the desired results can be attained. District manager difficulties became acute only in comparatively recent times, and until they became acute little actual study of the problem was made. Consequently, it is not surprising to find almost complete lack of uniformity in operating methods. The practice of nearly every company is still in the experimental stage. Each factory is trying different experiments. Even the exchange of experience and ideas has been comparatively limited up to the present time.

A survey of the activities of some important concerns, therefore, will facilitate the work of individual companies, and may promote further interchange of ideas on this important subject.

Factory ideas of what a traveling man ought to do fail to coincide with what such representatives do accomplish in most cases. The older established companies are demanding men capable of actually solving operating problems for distributers and dealers. Some of the new concerns want men of this kind too, but are demanding that the traveling man concentrate almost his entire attention on securing new dealers at the present time.

One long-established company, for example, has nearly 100 distributers and something like 800 or 1000 dealers. It operates six district managers, one of whom visits each distributer about once a month. This schedule is not rigidly adhered to, however, as the district manager is supposed to be where he is needed most at any given time. The district manager is the sole judge of how his time shall be distributed. The factory makes no effort to schedule his trips or to tell him where he should go.

THE district manager has supervision of his territory in a general way, but the distributer always has a direct line to the factory. The district manager is supposed to assist the distributers in connection with:

1. Finance.
2. Accounting.
3. Service.
4. Sales.
5. Routine problems and difficulties.

If a distributer becomes dissatisfied with anything, he is supposed to take it up with the district manager. If he fails to get satisfaction, he then appeals direct to the factory. There is nothing to prevent the distributer, however, from appealing direct to the factory in the beginning. As a matter of fact the distributer frequently does this.

The extent to which the factory backs up the district manager against the distributer depends, it seems, upon who the district manager is and who the distributer is. Theoretically, the factory would like to have district managers to whom it could give complete responsibility within their territory. But the difficulty of obtaining men sufficiently capable, however, has made it advisable to consider nearly every case on its own merits and act accordingly. The necessity for such practice on the part of the factory can be readily understood. The position of the district manager, however, appears none too pleasant. He cannot feel free to operate as general manager of his territory, knowing that he may be overruled in many instances.

Lacking complete power, he is probably constrained to side-step responsibility many times in doubtful cases. The proper adjustment of power and responsibility between the factory, the distributer and the district manager presents a nice problem, which must eventually be met frankly and solved along broad lines. The general confidence of a company in a district manager will always be involved, of course, but it would seem that some more definite working plan will have to be evolved in the future.

The general problem is mentioned here because the case cited is typical rather than special. It seems to be common to most companies, large and small.

Dealer education and distribution rests almost entirely in the hands of the distributers, so far as the factory mentioned is concerned. The district manager is expected to make suggestions to the distributer along this line and to urge the distributer to carry out the necessary activities to make dealers better merchandisers. The district manager may visit certain dealers in special cases, but as a general thing confines his activities to visiting, checking up and helping distributers.

The sales manager of this organization feels, however, that the factory will have to play a larger part in direct dealer education in the future. District managers will be important in extending this educational work, provided proper district managers can be found.

District managers aid in procuring new distributer contracts, but not new dealer contracts. A district manager makes his recommendation to the factory and the factory then signs up the distributer if district manager's recommendation is accepted. The factory usually follows recommendations in this respect, but the weight given to the district manager's opinion is in accordance with the factory opinion of the district manager. The same condition holds true as regards the cancellation of contracts. In some cases, the word of a powerful distributer is more highly regarded than that of the district manager.

FINANCIAL ability is a prime requisite, according to this factory, in a district manager. Financial problems are troubling distributers very greatly and the district manager must be thoroughly capable of lending them practical aid along these lines.

**FEW factory sales managers are satisfied with the performance of their district managers. Capable men are operating in particular cases, but there is general dissatisfaction as regards the men handling sales territories.**

**Recent conversations with prominent sales managers indicate that serious effort is being made to remedy the difficulties.**

**This article tells what various factories expect of their traveling men, some of the chief troubles encountered, what operating methods are used now, and what is being done to get better results in the future.**

District managers are given more responsibility in making distributer contracts and less in cancelling them, in the case of another well-established company which may be called company B for convenience. This company makes a middle priced car, has some 90 distributers and something like 1500 dealers. Its district managers have almost complete authority in signing up new distributers. Their recommendations are accepted in practically every case. They have no authority whatever, on the other hand, to cancel contracts. Cancellation possibilities always go direct to the factory sales manager who investigates very thoroughly before any action is taken.

PRACTICE here differs from the first case described also as regards district managers giving financial advice to distributers. District managers for company B have nothing to do with distributer finances. They do not get periodic financial statements from distributers and know little about the actual financial condition of the distributers. All such confidential financial matters are discussed by the distributers directly with the factory sales manager.

This is exactly opposed to the practice of the other company described, despite the fact that there is no great dissimilarity, either in the reputation of the organizations, or in the price of the product.

Company B has five district representatives in addition to its six district managers. The functions of the district managers are theoretically much the same as in the case of Company A, except for the differences mentioned. The district representatives are an interesting addition, however, worth special attention.

The functions of district representatives are to travel with the wholesale manager of the distributer; to help analyze dealer problems; to see that the wholesale department of the distributer is functioning properly; to help procure dealers wherever the factory thinks they are needed, and in general to assist the distributer's wholesale manager to function efficiently and properly.

Both the district managers and the district representatives report directly to the factory sales manager. They co-operate in a general way, but the district manager has no authority over the district representative.

These district representatives have been operating for more than a year and have proved highly successful. They were put on to supplement the dealer work which the distributer is supposed to do, but which many manufacturers have found the distributer is often loath to give his active attention. They perform a function which the district manager cannot, and apparently offer a good solution to an important merchandising problem. At least, Company B has found them highly useful.

A third company, Company C, agrees with Company A as to the major importance of finance in connection with distributers at the present time. This company, whose car is a bit lower in price than that of the two previously discussed, feels so strongly on the financial question that it is considering sending out factory experts who will devote their time entirely to assisting dealers and dis-

tributers to get on a sound and permanent financial basis.

One of the newer companies, Company D, believes that the primary function of the district manager is to build real merchants, but is concentrating its efforts at the present time almost entirely upon the expansion of its dealer organization. It plans to build its organization on this broad merchandising basis, however, and believes that one necessity is experienced, capable traveling men. The sales manager of this company thinks that traveling men should be built into the organization, kept with it for a long time and be well seasoned by experience.

A fifth example is Company E, which is also devoting a major part of its traveling men's time to building up a distributing organization. This company has had a high turnover in district managers, because of the lack of enough capable men. The sales manager here feels that sixty or ninety days will tell whether or not a traveling man is suitable for his organization.

These few examples will illustrate fairly well what most companies are expecting of their traveling men. Some companies give their district managers more assistance and support than others. The more important factories are providing their district men with market facts and territorial data to enable them to operate efficiently in a big way. Every company will have to provide such assistance in the future if it is to survive in this era of keen competition.

The better grade of district managers know the necessity for such background information and they will naturally gravitate to those companies which are handling their marketing work in the most intelligent manner. Other companies who really need the more capable district men because their district men have to operate without much supporting factual data, will not get those capable district men because of the lack of that very support.

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# Proposed Storage Battery Standards

AT a recent meeting of the Storage Battery Division of the Society of Automotive Engineers' Standards Committee, the following specification was approved for adoption as S.A.E. recommended practice:

Monobloc Battery Containers—

*Height.*—Containers shall be made in two heights only; namely, the B height for plates approximately 4¾ in. high, and the C height for plates approximately 5¼ in. high.

*Overall Height.*—The height from the outside of the bottom of the case to the top of the handle shall not exceed 9¼ in. for B containers, or 9⅞ in. for C containers.

*Height from Top of Ribs to Top of Container.*—These heights shall be:

B containers 6½ in. } Plus 0
C containers 7 in. } Minus 1/16 in.

Maximum variation between different compartments, 3/32 in.

*Inside Width of Compartments.*—5 31/32 in., plus or minus 1/32 in.

*Inside Lengths of Compartments.*—(a) 6-Compartment Containers

| B Containers | C Containers |
|---|---|
| S-3-B 1 5/16 in. | S-4-C 1 1/2 in. |
| S-4-B 1 1/2 in. | S-5-C 1 11/16 in. |
| S-5-B 1 11/16 in. | |

(b) 3-Compartment Containers

| B Containers | C Containers |
|---|---|
| S- 7-B 2 1/16 in. | S- 8-C 2 3/8 in. |
| S- 8-B 2 3/8 in. | S-10-C 2 13/16 in. |
| S- 9-B 2 7/16 in. | S-13-C 3 1/4 in. |
| S-10-B 2 13/16 in. | S-14-C 3 5/16 in. |
| S-16-B 3 11/16 in. | S-16-C 3 11/16 in. |
| S-18-B 3 15/16 in. | |
| S-19-B 4 1/8 in. | |

(c) Tolerances of plus 0 and minus 1/32 in. shall apply to container lengths of 3 5/16 in. or less and tolerances of plus 1/64 in. and minus 1/32 in. to lengths of over 3 5/16 in.

*Partitions Between Compartments.*—The thickness of the partitions between compartments shall be 3/16 in. minimum and ¼ in. maximum.

*Overall Width.*—The overall width shall not exceed 7½ in.

The following recommendation (as well as the foregoing specification) was formulated and will be submitted to the Standards Committee at its next meeting for adoption as an S.A.E. Recommended Practice:

Ratings of Batteries for Isolated Lighting Plants—

Lead-acid storage batteries for isolated electric lighting plant service shall have two ratings, a continuous rating and an intermittent rating. The ratings shall be determined at an initial temperature of 80 deg. Fahr. and shall be based on a final voltage of not less than 1.75 volts per cell.

*Continuous Rating.*—The continuous rating shall be the capacity in ampere-hours of the battery when it is discharged continuously at the 8-hour rate.

*Intermittent Rating.*—The intermittent rating shall be the ampere-hour capacity of the battery at a current rate equal to 1/24 of the said ampere-hour capacity when the discharge is spread over 72 hours.

To avoid night work, the following discharge and rest periods are suggested:

"An initial discharge period of 4 hours, followed by a 16-hour rest; then two 8-hour discharge periods, each followed by a 16-hour rest; the final discharge period being 4 hours."

The short periods at the beginning and at the end permit the test to begin at noon of the first day and end at noon of the fourth day.

Except for the final voltage per cell the ratings apply to nickel-iron batteries as well as lead-acid batteries.

Battery manufacturers should specify both ratings in their catalogs, using the following form:

S.A.E. Ampere-Hour Capacity Ratings: 100-140. The first number represents the capacity based on the continuous rating, and the second number the capacity based on the intermittent rating.

In making this recommendation it was understood that if one of the two ratings proposed is eliminated by subsequent Standards Committee or Society action, the Division recommendation shall be referred back, as it is considered that the situation can be covered adequately only by specifying both the continuous and intermittent ratings.

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THE Bureau of Standards machine for testing the endurance of automobile tires is now being used as a part of the co-operative work in progress with the Post Office Department, the tests of tires on the endurance machine being checked against actual road tests of tires on Post Office trucks.

Power loss tests have been made on special tires submitted by three different companies. The Bureau is prepared to make a limited number of such tests.

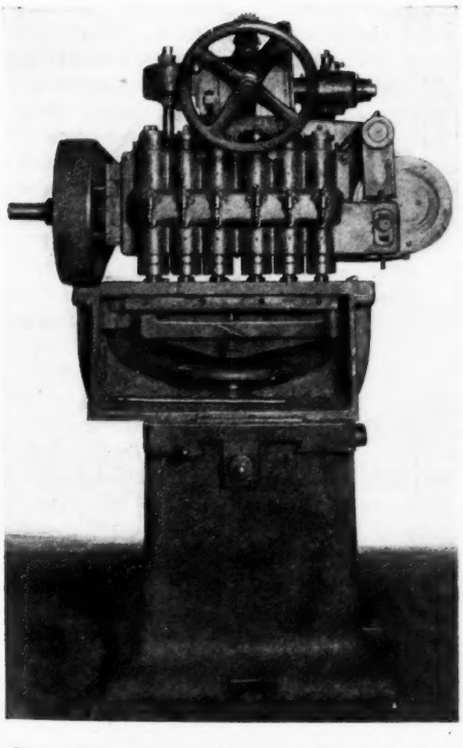
# Engine Design Aids Rapid Machining of Combustion Chamber

**Packard single-six offers good example. Symmetry of cylinders and valves permits profiling to be done in one operation on six-spindle machine. Cylinder head machined in 4½ minutes.**

By J. Edward Schipper

IT has been common practice for several years to machine with care the combustion chamber in racing car engines and other special jobs to secure equality of compression. All the efforts to secure a perfectly balanced engine may be set at naught by unequal displacement in the cylinders; that, of course, means unequal impulses. All of the effects of properly balancing a crankshaft, connecting rod and piston assembly may be ruined by neglect of this factor.

The introduction of the detachable cylinder head made machining of the combustion chambers far more practicable than when head was cast solidly with the cylinder. In the latter case it was almost impossible to machine the combustion chambers on a production and commercial basis. With the detachable head, however, the profiling operation is much more feasible. Development has been carried to such an extent that it is now common practice to machine the combustion chambers on the medium and high-priced cars.



*Coulter automatic profiling machine at work on Packard single-six cylinder head*

*Packard single-six cylinder head designed to facilitate production profiling*

The Packard single-six is a typical example of this practice. Cylinders and valves of the Packard engine were all made symmetrical in design so that in profiling out the compression chamber a six-spindle machine could be used, every cutter following the same outline. This is the best way to reap the full advantage of the special profiling machines adapted to this work, such as that made by the Automatic Machine Co.

On some makes of cars, the valve space on one side of the engine is offset slightly with relation to the center line as compared with the valves on the other side of the engine. In this case, it is necessary to have several three-spindle right and left-hand machines to accomplish the same results that a six-spindle machine would have accomplished if the matter of design could have been correlated with the machine tools to produce the desired results.

### Profiling in One Operation

The advantage of combining the design of the cylinder head with the characteristics of the machine tool is quite evident in this work. On the special engine, for instance, it would require two six-spindle machines to accomplish the results that one six-spindle machine could do if the design were changed. Instances are even noted where the difference was carried so far that the single-spindle machine is all that can be used. In this case, the old-fashioned hand profiler might just as well be used, as it is exceedingly difficult to have an automatic machine follow six different designs. To accomplish this would require a machine on the order of the Keller Mechanical Engraver, which is used in die work, but which takes only a very small cut at one time and can hardly be called a production milling machine.

The illustrations show the Coulter Automatic Profiling Machine at work on the Packard engine where the six cutters can operate at the same time. This machine has been designed specially to increase production on the profiling of the head, which is one of the most tedious machine operations.

The mechanism of this machine is controlled by one cam, which moves the head or spindle carrier longitudinally, while another moves the table or platen transversely. These cams are so designed and synchronized as to make the cutters follow the desired outline. After a cycle has been completed, the feed trips out, while the cutters revolve to clear themselves.

The operator's duties are reduced to merely chucking and unchucking the work and to facilitate this, the whole counter-weighted spindle head can be raised or lowered by the hand wheel above. The spindles with adjustable bearings are designed according to recognized milling spindle practice. There is an adjustment for wear in the cutter diameters and the cutters on each spindle can be vertically positioned independently. An additional adjustment on the transverse motion of the taper gibbed table is given to aid setting jig correctly and rapidly.

The work done on the Packard cylinder head, as shown in the illustration, is accomplished with cutters 1⅞ in. diameter, running at 143 r.p.m. The cut travel is 16 in. and a production time of 4½ min. for a completed head with six depressions is obtained.

# Proposed S. A. E. Generator and Motor Standards

AT a recent meeting of the Electrical Equipment Division of the Standards Committee of the Society of Automotive Engineers, T. L. Lee, chairman of the Subdivision on Generator and Starting Motor Mountings, submitted several recommendations relating to the present standards. As these recommendations had been submitted to generator and starting motor manufacturers and users and had met with general approval, the Electrical Equipment Division approved them in the following form for consideration at the annual meeting of the Society.

As considerable trouble has been experienced with the present S.A.E. Standard Nos. 1 and 2 generator flange shaft extensions because there is insufficient room for a washer between the nut and the pinion and because of the location of the cotterpin, the Subdivision recommends that dimension *L*, Fig. 2, be increased by 1/32 in. and dimension *M* by 3/32 in. The revised dimensions allow sufficient room for a washer to be used and locate the cotterpin hole so that it will not break into the shaft center.

To provide engine builders with all information necessary for making provision for the mounting of S.A.E. standard flanges, the Subdivision also recommends that the additional contour dimensions shown in Fig. 1 be included in the present standard and that the thickness of the flange be specified as ½ in.

In view of the demand for an S.A.E. standard for starting motor flange mountings for outboard installations only, the Subdivision recommends the adoption of the mounting dimensions given in Fig. 3.

The Subdivision also recommends the adoption of a flange thickness of ½ in. for the present S.A.E. standard for starting motor flange mountings which is printed on p. B19 of the S.A.E. Handbook.

The Electrical Equipment Division has recommended that the present S.A.E. standard for starting motor pinions be revised to read:

"Starting motors shall be equipped with an 8-10 pitch, 11-tooth, 20-deg. pressure angle pinion. The starting motor shall be installed so that the pitch circle about which the teeth on the pinion are generated will be separated from 0.015 to 0.025 in. from the pitch circle about which the teeth on the flywheel are generated."

## Gasoline Consumption Breaks Record

A NEW high record for consumption of gasoline in the United States was attained in the month of August, according to statistics compiled by the Federal Bureau of Mines, which show a domestic usage of 583,687,932 gallons. Consumption of gasoline in August was 3.1 per cent greater than in July, in which month a record consumption mark had also been established. Consumption figures for this August represent an increase of 16 per cent over the statistics for August, 1921.

Production of gasoline during August amounted to 549,958,376 gallons. The figures represent a decrease of approximately 20,000,000 gallons, or 3.5 per cent from the July output, which set a new monthly record for gasoline manufacture. Stocks of gasoline on hand September 1 amounted to 703,738,310 gallons, a decrease of 69,000,000 gallons during the month.

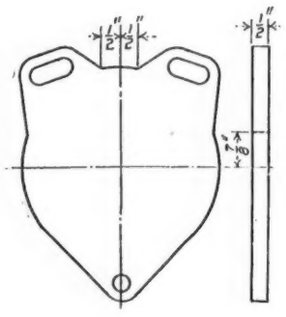


Fig. 1

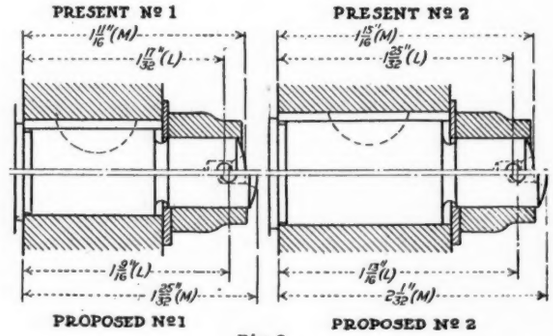



Fig. 2

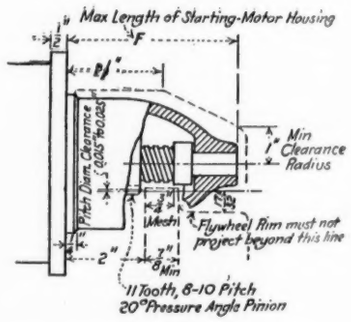

Max Length of Starting-Motor Housing
Min Clearance Radius
Flywheel Rim must not project beyond this line
11 Tooth, 8-10 Pitch
20° Pressure Angle Pinion

Fig. 3

*Fig. 1—Proposed additional dimensions for generator flange mountings. Fig. 2—Proposed changes in generator flange mountings. Fig. 3—Proposed mounting dimensions for starting motor flange. Dimension F is 4 7/16 in. maximum for the 10, 11, 12 and 13-tooth small hollow shift and 4¾ in. for the 13-tooth large hollow shift*

# S. A. E., Government and A. P. I. Discuss Lubricant Specifications

**Classification of engine oils according to viscosities is recommended, but final agreement is not reached. Acidity and emulsion tests are considered of doubtful value. Oil men's proposal to increase allowable carbon residue is voted down.**

REPRESENTATIVES of the Society of Automotive Engineers, the American Petroleum Institute and the Government Interdepartmental Committee on Petroleum Specifications met last week in Washington, primarily for the purpose of discussing proposed standard specifications for engine lubricating oils prepared by the Lubricants Division of the S. A. E. Standards Committee. These specifications have been slightly revised since they were proposed at the summer meeting of the Society at White Sulphur Springs, and are given in Table I below. The items printed in bold face indicate the changes agreed to by S. A. E. and A. P. I. representatives at last week's meeting.

A large part of the discussion had reference to the classification of the various grades of oil in respect to viscosity as indicated by the terms "light," "medium," "heavy," etc. The Government representatives, especially those from the Navy Department, favored the use of a classification based largely on viscosity measurements at 130 deg. Fahr. and a somewhat different grouping under grade names. They were not in a position to take final action in any case but are to give serious consideration to the matter of bringing the Government specifications into harmony with the revised S. A. E. specifications agreed to by the S. A. E. and A. P. I. representatives.

None of the votes taken at the meeting are considered binding, but the sense of those present was secured on several points of considerable importance. The matter of acidity, for example, was discussed at some length as was, also, the emulsibility test. It was the view of several speakers that neither of these tests are a good index upon which to base conclusions as to the quality or durability of the oil. It was voted, consequently, that these tests be further investigated and that revision of Government specifications be made in the light of the findings. These two tests are not referred to in the proposed S. A. E. specifications. There was a decided feeling that specifications should be limited to items covered by tests of known value. It was agreed that an investigation should be made to determine whether or not the Waters oxidation test and the evaporation test are not more significant in indicating the tendency of an oil to deteriorate in use than are the acidity and emulsibility tests.

The value of the color test was questioned by some of those present but it was stated that this test is of value chiefly because it insures an oil free from sediment. S. A. E. representatives agreed to the changes in respect to color given in Table I.

Some of the oil company representatives expressed the view that the allowable carbon content of the oil as indicated by the Conradson test should be increased on all grades by at least 0.1 per cent, with a considerably greater increase on the heavier grades of oil. S. A. E. representatives stated that, in their belief, a higher carbon content would not be acceptable to the automotive industry, consequently the proposed increase was voted down. One oil man stated that the present limitations on carbon content can be easily met when naphthalene base oils are available for blending but that it is not convenient for all refiners to hold to the lower limits. A representative of one refiner contended that carbon in an engine cylinder forms more rapidly with an asphaltic base oil, although such oils show a lower carbon content in the Conradson test than do the paraffin base oils. A low carbon content specification is therefore inclined to discriminate against oils from the paraffin base.

In discussing the matter of viscosity representatives of the Navy Department stated that their preference for using a temperature of 130 deg. Fahr. as the temperature at which viscosity is measured, is due to the fact that a better comparison between asphaltic base oils and oils of other bases is obtained when this temperature is used. There appeared to be general agreement in this respect, but the majority of those present took the view that the custom of measuring viscosity at 100 deg. Fahr. is now so firmly established that a general change to 130 deg. would be exceedingly difficult and make the specification less likely to be generally used.

### S. A. E. Specifications Important

There appeared to be a feeling among oil representatives that, although the present Government specifications are now widely used by other than Government purchasers, the S. A. E. specifications promise to have an even wider application. It is consequently of great importance that the S. A. E. specifications be thoroughly thrashed out before they are finally adopted by the Society.

It is manifestly desirable that the S. A. E. and the Government specifications agree as nearly as possible. In many respects the specifications agreed to by S. A. E. and A. P. I. representatives at the meeting are identical with those issued by the Federal Board, but the proposed classification differs considerably and will involve rewriting the Government specifications if the Government committee agrees to use the classification accepted at the meeting. One of the oil men said that the numeri-

cal classification accepted would be likely to cause a trend toward the use of heavier oil, as has been the case in Europe, with the result that the oils used are often too viscous and consequently tend to form carbon deposits rapidly.

In the discussion concerning acidity it was pointed out that it has proved impossible thus far to find any definite relation between the acidity and the durability of the oil or its tendency to deteriorate in use. In some tests made at the Bureau of Standards it has been found that the use of an oil for two hours in an engine often increases the acidity and carbon contents to such an extent that the oil would not pass present Government specifications. One oil man stated that the increase in acidity is more rapid with paraffin than with naphthene base oils, but that there is much question as to whether the acidity of the oil has any relation whatever to its freedom from deterioration under service conditions.

## Waters Oxidation Test

It was pointed out that the American Society for Testing Materials is expected shortly to report upon the value of the Waters oxidation test and the evaporation test. A standard method for making these tests must be agreed upon before they can be commercially applied, even though they are found to give the desired information regarding the oil tested.

There was some discussion concerning the proposed S. A. E. specifications for gearset lubricating oils covered by the specification given in Table II. Some oil men objected to the flash point specified stating that oils of lower flash have been used with satisfaction. To this an S. A. E. representative replied that the specification followed is that used by the General Motors Co., which is said to be the only large automotive producer using oil in the gearset. The reason for specifying a flash point of 350 deg. Fahr. in winter and 450 in summer, is to prevent the use of tarry products in the lubricant.

No specific action was taken in respect to this gearset oil.

TABLE II. PROPOSED S.A.E. SPECIFICATIONS FOR GEARSET LUBRICATING OILS

| Specification No. | Grade | Flash-Point, Deg. Fahr.* Min. | Viscosity at 210 Deg. Fahr., Saybolt Sec. Min. | Viscosity at 210 Deg. Fahr., Saybolt Sec. Max. | Pour Test Deg. Fahr., Maximum (American Society for Testing Materials Method) |
|---|---|---|---|---|---|
| 110 | Winter | 350 | 100 | 120 | 10 |
| 160 | Summer | 450 | 150 | 170 | 45 |

*American Society for Testing Materials, Cleveland Open Cup.

These specifications cover grades of petroleum oil suitable for the lubrication of gear sets, differential gears, worm drives and roller and ball bearings used in connection with such motor vehicle equipment.

Compounded lubricating oils containing products other than those derived from petroleum are not covered by these specifications.

In opening the meeting N. A. C. Smith of the Bureau of Mines, who is chairman of the Inter-Departmental Committee, stated that the Government specifications for motor gasoline have recently been so altered as to decrease the initial boiling point from 140 to 131 deg. Fahr. and increase the 90 per cent point from 374 to 392 deg. Fahr. Time did not permit of any discussion in this connection nor was any explanation of the change given.

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THE Council of the Institution of Automobile Engineers (England) in preparing the program for the session 1923-24 has decided to endeavor as far as possible to concentrate attention on one particular phase, and has selected as the general theme "Economy." In dealing with this subject, it desires especially to concentrate on the question of accessibility as it affects reduction of first cost and maintenance costs and as a selling point. The Crompton Medal for the session 1922-23 has been awarded to H. F. L. Orcutt for his paper on "Motor Car Gear-boxes."

TABLE I. PROPOSED S.A.E. SPECIFICATIONS OF INTERNAL COMBUSTION ENGINE LUBRICATING OILS

| Spec. No.[1] | Supplementary Grade Names | Flash-Point, Deg. Fahr., Min. | Fire-Point, Deg. Fahr., Min. | Viscosity, Saybolt Sec. 100 Deg. Fahr. Min. | 100 Deg. Fahr. Avg. | 100 Deg. Fahr. Max. | 210 Deg. Fahr. Min. | 210 Deg. Fahr. Avg. | 210 Deg. Fahr. Max. | Color[2] (NPA) S.A.E. Proposal | Color[3] (NPA) as Revised | Pour Test, Deg. Fahr., Max. | Conradson Carbon Residue, Per Cent Max. | Corrosion Test |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 15 | Light ..... | ... | ... | ... | 150 | ... | .. | .. | .. | .. | 5 (50-50) | .. | ... | |
| 20 | Light ..... | 325 | 365 | 180 | 200 | 220 | 42 | .. | .. | 5 | 5 (50-50) | 35 | 0.20 | |
| 020 | Light ..... | 325 | 365 | 180 | 200 | 220 | 42 | .. | .. | 5 | 5 (50-50) | 10 | 0.20 | |
| 30 | Medium ..... | 335 | 380 | 270 | 300 | 330 | 44 | .. | .. | 5 | 5 (50-50) | 40 | 0.30 | |
| 030 | Medium ..... | 335 | 380 | 270 | 300 | 330 | 44 | .. | .. | 5 | 5 (50-50) | 10 | 0.30 | Required |
| 40 | Medium ..... | 345 | 390 | 360 | 400 | 440 | 46 | .. | .. | 5 | 5 (60-40) | 45 | 0.40 | for all |
| 50 | Heavy ..... | 355 | 400 | 450 | 512 | 575 | 50 | .. | .. | 6 | 5 (70-30) | 50 | 0.60 | grades |
| 60 | Heavy ..... | 360 | ... | ... | ... | ... | 55 | 60 | 65 | .. | 5 (80-20) | 55 | 0.80 | |
| 80 | Extra heavy... | 380 | ... | ... | ... | ... | 75 | 80 | 85 | .. | 5 (85-15) | 55 | 1.50 | |
| 95 | Extra heavy... | 390 | ... | ... | ... | ... | 90 | 95 | 100 | .. | 5 (90-10) | 55 | 1.75 | |
| 115 | Extra heavy... | 400 | ... | ... | ... | ... | 110 | 115 | 120 | .. | 5 (95-5) | 60 | 2.00 | |

[1] For Specifications Nos. 20 to 50, inclusive, the numbers indicate the first two figures of the average Saybolt viscosity in seconds at 100 deg. Fahr. for the grades indicated. The first cipher in Specifications Nos. 020 and 030 indicates that the pour-test value of these two grades is 10 deg. Fahr. The numbers for Specifications Nos. 60 to 115, inclusive, indicate the average Saybolt viscosity in seconds at 210 deg. Fahr.

[2] Darkest color allowed for a mixture of 50 per cent oil and 50 per cent kerosene.

[3] Darkest color allowed for a solution made by mixing the oil with the per cent of water white kerosene noted, e.g. (70-30) means a mixture of 70 per cent kerosene and 30 per cent lubricating oil.

*General.*—These specifications cover grades of petroleum oil for the lubrication of internal-combustion engines, except aircraft.

Compounded lubricating oils containing products other than those derived from petroleum are not dealt with in these specifications.

*Corrosion Test.*—The following corrosion test shall not cause discoloration of copper strip. Place a clean piece of mechanically polished pure strip-copper about ½ in. wide and 3 in. long, and 10 cc. of the oil to be tested, in a clean test tube. Close the tube with a vented stopper and hold for 3 hr. at 212 deg. Fahr. Rinse the copper strip with sulphur-free acetone and compare it with a similar strip of freshly polished copper.

# Effect of Dilution Upon Viscosity and Oiliness of Lubricant

**So far as bearings are concerned a 300 sec. viscosity lubricant may be equally safe whether it is pure oil, or diluted oil of a heavier original body, but for piston lubrication, where higher temperatures are encountered, undiluted oil is vastly better.**

By A. Ludlow Clayden

THE effect upon viscosity of varying degrees of dilution is known for many different kinds of oil and follows natural tendencies as I believe the curves illustrating this contribution will make clear.

The effect of a given percentage dilution varies with the original viscosity of the oil and is greatest on a heavy oil.

This might at first sight seem contrary to expectation, but remembering that it is *percentage* that we are considering, not absolute viscosity, will make the statement obvious. For instance, the effect upon the specific gravity of a flask full of mercury obtained by substituting 25 per cent of kerosene would be almost a 25 per cent reduction, while the effect of a similar substitution upon a flask of water would be only slight. In the same way the reduction in viscosity of a 300 sec. oil by the presence of 10 per cent diluent might be 45 per cent, but 10 per cent dilution of a 150 sec. oil would only reduce the viscosity 35 per cent. Going to the other extreme and taking a 1000 sec. oil, 10 per cent dilution might drop the viscosity 60 per cent.

Of course it follows that the effect of each successive percentage of dilution decreases. The following table, which accompanies Fig. 1, shows this very well; as applied to a sample of oil selected at random:

| Dilution Per Cent | Loss of Viscosity Per Cent. |
|---|---|
| 10 | 36 |
| 20 | 56 |
| 30 | 64 |
| 40 | 68 |

This does not mean, of course, that there is no advantage in starting with a heavy oil, because, although the per cent loss of viscosity may be rapid, the absolute loss may be well within practical limits. Taking another example, an oil of 600 sec. viscosity shown in Fig. 2 shows a drop of 53 per cent due to a 10 per cent dilution, while an oil of 400 sec. viscosity shows a drop of but 48 per cent, and an oil of 300 sec. viscosity a drop of 45 per cent. These reduce the actual viscosities to 282, 208, and 135 sec. respectively, or the 600 sec. viscosity oil after 10 per cent dilution is almost equal to the 300 sec. viscosity new oil.

Next as to the effect of dilution upon the lubricating value of an oil. So far as film *forming* characteristics are concerned, the admixture of original oil with kerosene is probably identical in action with a new oil, but the "oiliness" characteristic upon which the lubricating value of the film largely depends may be quite different. Oiliness is a subject upon which it is highly dangerous to say much at present. It is in a half investigated state, and really the same is true of the coefficient of friction of oil films generally. The effect of heat, however, would be quite different.

An oil, of what ever viscosity within the motor oil range, may be composed of hydrocarbons with substantially the same boiling point. Suppose such an oil is stable at 400 deg. Fahr.; that is to say, a film exposed to that temperature will evaporate evenly, then on exposure to heat the film will shrink in thickness but will do so evenly. Compare this with a mixture of a heavier oil and kerosene, and in the latter case the tendency is for the kerosene to boil out, leaving the oil behind. Such an action will be disruptive to the film, leaving it, in a sense, full of holes.

Summed up, this amounts to the fact that so far as bearings are concerned a 300 sec. viscosity lubricant may be equally safe whether it is pure oil or thinned out oil of a heavier original body, but for piston lubrication the new oil would be vastly better.

This being the case, we reach the only possible conclusion, which is that the important thing is the percentage of dilution itself rather than the effect of such dilution upon the viscosity.

There is yet another disastrous effect of a kerosene content, which is that an oil with much diluent is liable to leave worse cylinder deposits. Such an oil on the piston head will readily ignite and the kerosene burn out of it, leaving soot from its own combustion and reacting on the adjacent molecules of oil, tending to crack them and thereby form just the sort of gums necessary to catch the soot and thereafter bake into hard carbonaceous deposit.

### Nothing Absolute About Dilution

Thus there is nothing absolute about dilution. It is not possible to say that so much per cent is safe and so much more dangerous. It depends upon the particular engine, its conditions of service and the original nature of the oil. One can merely say that the more highly stressed the engine, and the higher its piston temperatures, the smaller the quantity of diluent, which spells danger.

Of course, knowing the original viscosity, it is possible to check the diluent percentage by running a test on the crankcase oil, but it is easier to make a straight distillation and obtain the dilution direct. Hitherto nobody has

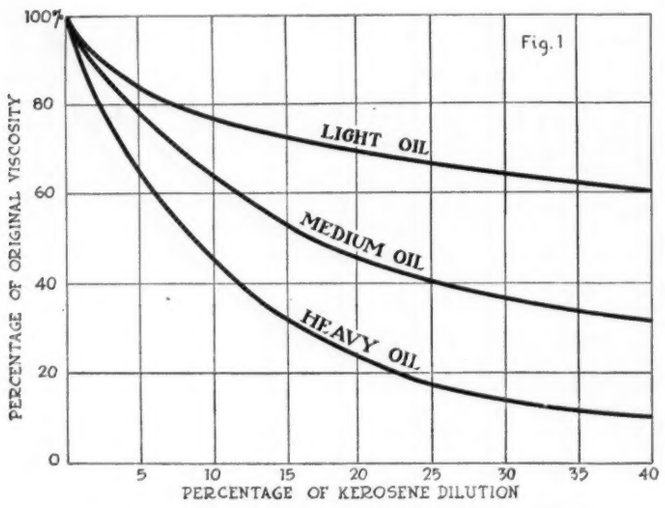



*Fig. 1—Curves for a heavy, a medium and a light oil, showing the effect of dilution with kerosene upon their viscosities. Note that all curves start at 100 per cent with no dilution and that the curve shows percentage only*

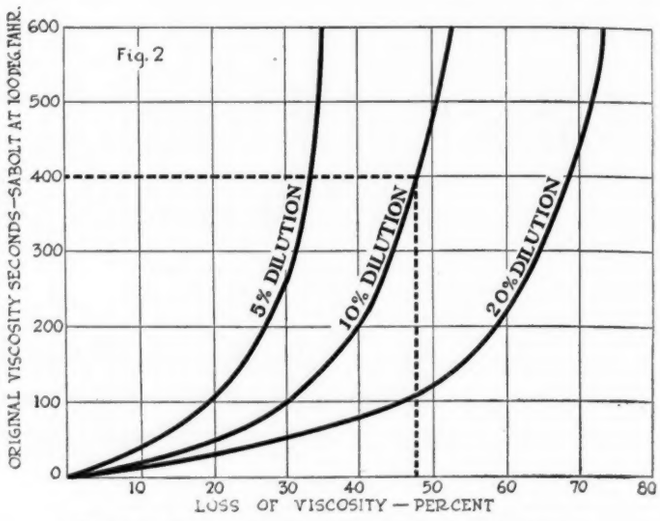



*Fig. 2—Curves showing the effect of dilutions of 5 per cent, 10 per cent and 15 per cent of kerosene in oils of any viscosity up to 600 seconds at 100 deg. Fahr. The dotted line shows the method of reading, an oil of 400 seconds with 10 per cent dilution loses 48 per cent of its original viscosity*

discovered a simple way of measuring viscosity, nor even a simple method of checking dilution with any degree of accuracy. Of course, the ideal is a dashboard indicator, and the Lea Viscometer gives promise of accomplishing a good deal in this direction. The principal question in the writer's mind is whether the average operator would pay attention to such an indicator even if it was stock equipment on his car.

Finley R. Porter in his Metropolitan section paper said that dilution is a carburetion problem and not a lubrication question, and he is undoubtedly right. To try to make an oil which will lubricate equally well whether diluted or not is rather like trying to make a tire which will hold air when shot full of holes. The mere fact that the dilution in really well designed and well made engines is but a fraction of average dilution puts the problem back where it properly belongs, on the shoulders of the engineer. Dilution should be prevented in the first place and not compensated for after it has occurred.

# Fuel Research at Purdue

AUTOMOTIVE research work of interest to manufacturers is being carried on at Purdue University. Research activities in the automotive field at Purdue can be divided into two classes, according to G. W. Monro, Professor of Thermodynamics:

1. Road materials.
2. Fuel utilization.

The road materials investigation is not of great direct interest to automotive manufacturers, but its results will aid materially in solving problems indirectly affecting car and truck sales.

The researches on fuels and carburetion have been confined to the following fields:

(a) The mixture requirements of an engine as affected by variations of speed and load and so the determination of the range of fuel-air ratios which may be considered the *best possible* carburetion when both speed and load are subject to variations as in automobile engines. This investigation by Berry and Kegerreis has been completed and the results published as Bulletin No. 5, Purdue Engineering Experiment Station.

(b) The temperatures and amount of heat required and available in "hot spot" manifolds. This investigation involved a study of rates and characteristics of fuel evaporation at various temperatures with careful tests to determine if the engine exhaust furnished proper temperatures for best results. Considerable data were secured on rates of evaporation per unit area in order to provide some data for manifold design. This material is now being prepared for publication.

(c) A study of explosive mixtures through the color of the propagated flame.

(d) Atomization of liquid fuels during carburetion. This is a problem of first importance in engine design. This is being approached in two ways. First, directly, by mechanical production of various degrees of atomization and securing proper data on the results obtained, and second, by studying the effect of fluidity in liquid fuels in connection with usual carbureting methods.

(e) Elimination of "detonation" by chemical treatment of fuels. This field, which has been brought into some prominence by the appearance on the market of "non-detonating" fuels, is receiving proper attention. The perfection of carbureting methods for fuels giving "detoning" mixtures will probably give this question greater importance in the future than it has at present.

(f) High speed indicator. Research in high speed engines has been handicapped by the lack of a high speed indicator which should correspond in accuracy and sensitiveness with the electric oscillograph. An attempt is being made to supply this need by utilizing the change in electric characteristics of a gas, by a change in pressure. The recent development of the electronic tube opens up a promising and very enticing field for such development.

# British Engineering Trends Shown at Olympia Exhibit

**Overhead valves, unit powerplant, and aluminum pistons increase in popularity. More cars equipped with four speeds. Aluminum axles are prominent. Only one model carries front-wheel brakes. Most new engines have less than 120 cu. in. piston displacement.**

By M. W. Bourdon

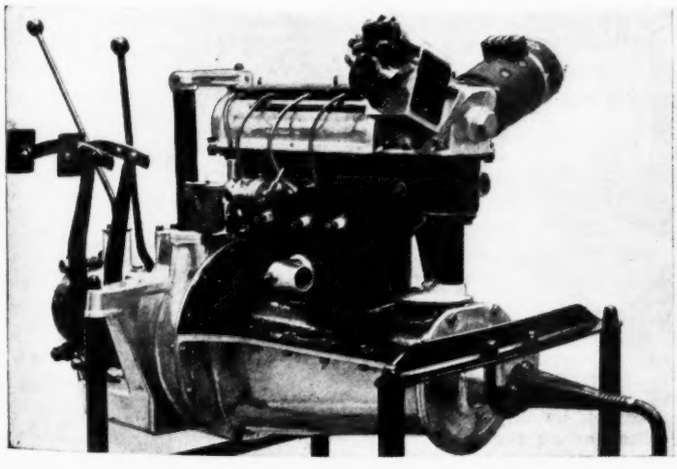
OF the swarm of new "economy models" at this year's show, to which reference was made in my cabled report, many are the product of firms which have previously concentrated on luxury types, while on the other hand, the original light-car makers are endeavoring to break fresh ground (for them) in a bigger type. It is an extraordinary state of affairs. Almost every maker who has been feeling the draft in his particular field has encroached on the plots of others; some have gone towards smaller cars, others have introduced larger models. As a result there is overlapping without end.

It is now quite impossible to define the light-car field. According to competition rules, the light car is a two or four-passenger vehicle with no weight limit but with an engine of less than 1500 c.c. (91.6 cu. in.) displacement. But we have makers ignoring that and calling their productions light cars despite engines approaching 2000 c.c. The only possible definition of a light car in these days is one having a high speed, high efficiency engine of under 120 cu. in. displacement.

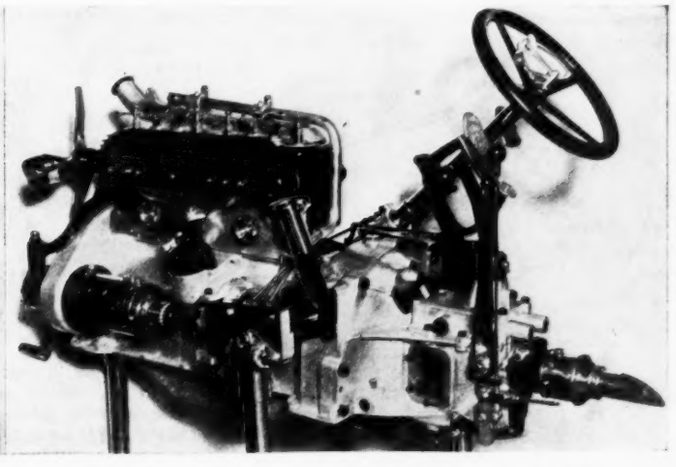
The fact that a large proportion of new models are of the four-passenger type with four-cylinder engines ranging from 100 to 120 cu. in. capacity might off-hand give the idea that there is a revulsion of feeling from the smaller sizes with a similar passenger capacity. But that is not actually the case. It is the result of the two moves already mentioned, viz., small-car makers introducing additional larger models and large-car makers supplementing their range by smaller models, both trying to widen their appeal, plus new firms who have entered the industry with cars of this size. This field has, therefore, been encroached upon from three directions, whereas, the one represented by cars with engines of less than 100 cu. in. has been further crowded mainly by new makers and the offering of additional models by makers already within it.

## Valve Position

An increase in the number of overhead valve engines is one of the outstanding trends in British design, for these have increased from 24 to 33 per cent during the year, though not one of the additions has an overhead camshaft. Pushrods are now used on 74 per cent of the overhead valve engines, as against 56 per cent last year and 43 in 1920. The fact is, neither manufacturers nor buyers favor the overhead camshaft. The camshaft over the cylinders is clearly more expensive to provide in a satisfactory manner and has drawbacks in upkeep as compared with the alternative; so, while the overhead camshaft has admittedly points in its favor from the aspect of efficiency at high speeds, opinion generally



*Smallest and cheapest British overhead camshaft engine, the 10-hp. Rhode (62 x 90 mm.)*



*Powerplant of new Ruston Hornsby Sixteen (3⅛ x 5⅛ in.). The five-passenger car of 117 in. wheelbase sells at £525*

places the balance of advantages on the side of pushrods.

As to the reason why overhead valves have made their further stride in popularity, it is obviously the desire for more economy in operating costs. For instance, one prominent maker of light cars with a 67-cu.-in. engine, desiring to meet the increasing demand for four-passenger bodies, had originally in mind to increase his engine size up to 80 cu. in. or so. But he found that he could get the required increase of power by adopting overhead valves and keeping his engine the same size. He now obtained 21 b.h.p. at 3000 r.p.m., as compared with 16 b.h.p., which was the peak of the power curve with the side valve engine, and as a result his new four-passenger car uses practically no more fuel per mile than his old two-seater.

### Side Valves Predominate in New Cars

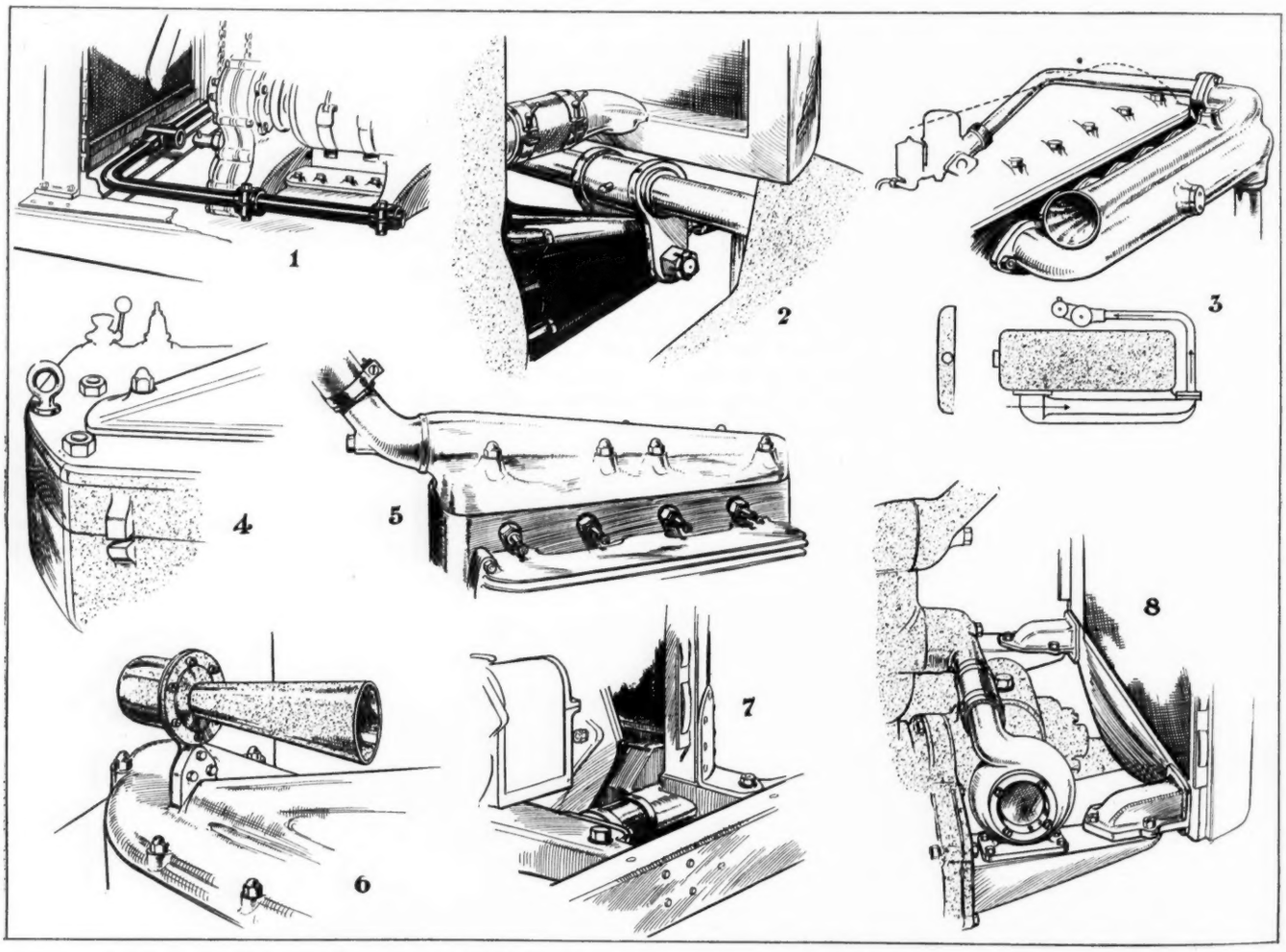
But overhead valves are, naturally, considered as of no great advantage unless they are to accompany such relatively high engine speeds as that just mentioned, and those makers who are inclined to get away from the high-efficiency light-car fetish by using a larger engine of moderate speed and efficiency, are either retaining or going back to side valves; Crossley and Wolseley, respectively, are cases in point with their new "14." Of new engines 46 per cent have overhead, 48 side and 6 per cent sleeve valves.

### Cylinder Construction

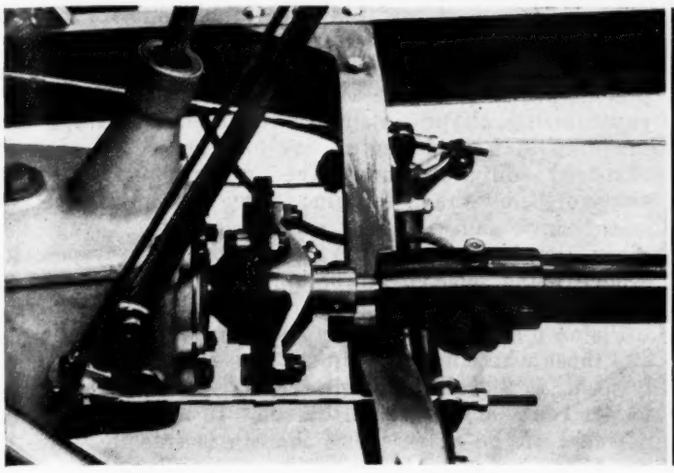
With the percentage of overhead valve engines, detachable cylinder heads naturally have also increased, though there are still 35 per cent of British engines with integral heads as compared with 47 per cent last year. On one new integral-head engine the valve caps are water-cooled by arranging them within the water space enclosed by an over-all riser of aluminum.

Casting of cylinders in pairs in the case of four-cylinder engines is now almost defunct, only 3 per cent having this arrangement (10 per cent last year). Block castings for sixes have also increased from 10 to 48 per cent, this being due to a great extent to the additional number of six-cylinder engines of less than 150 cu. in. capacity. Pair-cast cylinders are most popular for sixes, next to the block; there are four examples of three and one with separately cast cylinders.

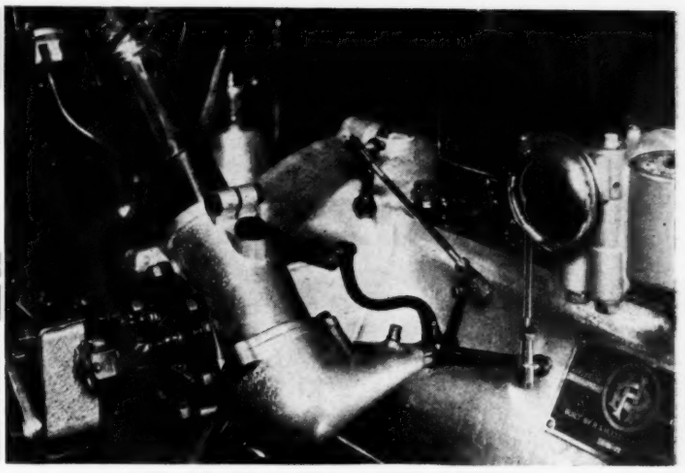
Despite the large number of new engines of small size the practice of forming the cylinders and upper half of the crankcase as a unit in cast iron has not increased to any marked extent; it appears on only 20 per cent as against 15 last year. The barrel or unit type of crank-




*1—Front engine mounting of new Rolls-Royce Twenty; rear support consists of steel tube passing through crankcase, affording three-point suspension. 2—Front end support of engine on new Singer Ten. 3—Combined exhaust manifold and air intake of cast aluminum on new Morris Six. 4—Bosses on McCurd engine to enable joint to be broken easily. This engine also has an eye bolt at each end of head for lifting. 5—New Calthorpe with L-head cylinders has valve caps enclosed by overall aluminum water riser. 6—Integral standard for horn on Calthorpe cylinder head. 7—Water circuit from cylinder jackets to radiator on new Morris Six passes through right front crankcase bearer. 8—Water from pump to radiator on new 12-hp. Calthorpe passes through right hand bracket extension from crankcase, which also forms radiator support on that side*



*Disk universal of 11-hp. Amilcar which has spherical pilot extension from front spider to rear one to enable joint to take torque*



*Lateral extension from bottom of steering housing to carry control levers on new 16-hp. Ruston Hornsby powerplant*

case is used in a few more cars than last year; in one example it is of cast iron and is integral with the cylinders and the clutch housing flange. The oil pan is, of course, a separate entity, usually of aluminum, though of pressed steel in a few cases.

Aluminum cylinders have not increased, and they appear only on the 40-50 h.p. Napier, where they are cast as a unit with the upper half of the crankcase, and in one model of the Dorman stock engines, a 69 x 120 mm. four, with overhead valves. In this latter case the cylinder block is a unit with a barrel type crankcase which originally had a ball bearing at the rear end but now has both bearings of white metal.

Of the total output of British cars, probably not 2 per cent have engines designed as well as made by engine specialists. The same applies to transmission and axles, and excepting the Morris line referred to in the cabled report, which hardly comes within the category, there is no assembled car of any consequence made in England.

Sleeve-valve engines are still confined to Daimler, B. S. A., Argyll and Magnetic, in the passenger-car field, the first two being Knight engines, and both engines and chassis are manufactured in the Daimler plant; the Argyll has the Burt-McCollum single sleeve-valve engine, and so has the Magnetic—a 15-h.p. chassis with Entz transmission.

Hitherto the smallest sleeve-valve engine made on a production basis in England has been the 80 x 130 mm. Argyll, but the single-sleeve cylinder now appears in a 68 x 103-mm. size, and the Daimler-Knight in two smaller sizes, 59 x 94 mm. and 66.5 x 105 mm., both as sixes in new Daimlers, and the latter as a four in a B. S. A.

## Number of Cylinders

Four-cylinder engines are still predominant, forming 75 per cent of the total, having thus lost but slightly to sixes, the latter now making up 15 per cent. Although the percentage of sixes has risen but slightly there are eight new models with that number of cylinders, two below 100-cu.-in. capacity, three between 100 and 150 and three between 150 and 200. There are only the same two eight-cylinder cars as last year, the straight-eight Leyland and the V-eight Guy, both of which have a very limited sale. Strangely enough, the makers of both these British eights are prominent in the truck industry.

The use of a sub-frame for supporting the engine is rapidly being discarded, only 15 per cent of British cars now having that arrangement, as compared with 25 per cent last year. Three-point engine suspension in the main frame is found on 33 per cent and a four-point on 55. Sub-frames have a four-point suspension in 94 per cent of cases, and the engine and gearset or the unit power-plant are almost invariably suspended in the sub-frame from four points as well, a plan which obviously makes the sub-frame of very little advantage.

## Distribution

The silent chain has receded in favor since last year, appearing in 56 per cent of engines as against 60. Helical gears have advanced from 22 to 28 per cent and straight-toothed pinions are in use on 16 per cent, largely new models. The decline of the chain drive is variously explained. In a few cases it is ascribed to unequal wear of the links and pins which makes it impossible to devise any system of adjustment serving to obviate "thrashing" in a long or triangulated chain.

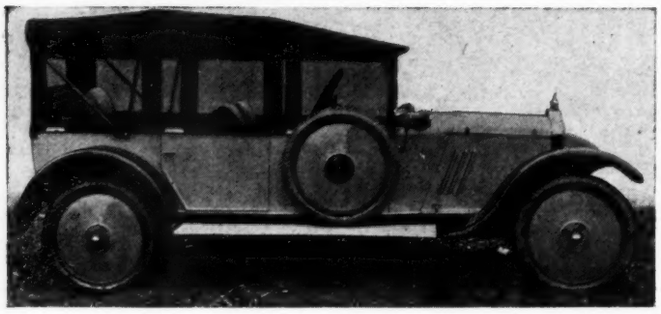
Non-adjustable short chains, one each for the camshaft, magneto and generator, are used instead by some makers, but this is found more costly than the use of helical gears, and so the latter have been substituted in some cases with good effect. As showing that chains have not been entirely satisfactory—probably because of improper application—it is often said that the noisiest parts of certain British cars are the so-called silent chains at the front of the engine.

Nevertheless, as the percentages given show, chain distribution is still most widely in use, and troubles in connection with it have been practically eliminated in many instances by using wider chains and larger sprockets. Wolseley now uses spiral bevels and chains in place of straight-toothed bevel and chain for his overhead camshaft drive.

## Cooling Systems

Owing to the majority of new engines ranging below 120-cu.-in. capacity, thermo-syphon water circulation shows an increase, appearing on 58 per cent of engines of all sizes as compared with 51 last year and 48 in 1920. Air-cooling has not developed, being still confined to two-cylinder light cars of under 60-cu.-in. capacity.

Control of the cooling water temperature has at last appeared on an appreciable number of British cars, thirteen models having something in this way. A thermostatic valve in the uptake pipe is used on six of these, a hand-operated valve in five (all Daimlers), a thermostatic valve operating radiator shutters on one and hand-operated shutters on another (the new 20-hp. Rolls-Royce). As yet any control of this nature is almost



*New 8-hp. Standard 67 cu. in. three-door, four-passenger car with top erected and framed side panels in position*

entirely confined to high-price cars of over 20 hp.; there are two exceptions, both 12 hp. fours with thermo-syphon circulating systems, the thermostatic valve in one case being in the uptake pipe, while in the other it takes effect upon radiator shutters.

The assisted thermo-syphon system of water circulation, embodying a pump within the jacket of the front cylinder with its rotor mounted on the belt-driven fan-shaft, is dying out, though there are still 12 per cent of water pumps thus placed and driven.

A complete change about has occurred in respect of nickel-plated sheet brass and polished white-metal radiator shells. Last year the latter had increased very perceptibly, but now 64 per cent of radiators have white metal shells, displacing both nickeled brass (now 32 per cent) and aluminum. Isolated examples are to be seen of attempts to simplify the water piping by utilizing one of the crankcase arms to form a part of the water circuit between cylinder block and bottom of radiator. It can be made quite an effective plan in thermo-syphon systems, and is utilized satisfactorily on one pump system (a new 12-hp. Calthorpe).

## Engine Lubrication

After increasing in popularity for several years past the hollow crankshaft system of lubrication has lost ground, having receded from 54 to 44 per cent. But this is doubtless due to the large proportion of small engines among new models, for which this system is not considered necessary. The splash system (pump and troughs) has increased (21 to 34 per cent) and splash with pressure to the main journals receded from 22 to 18 per cent. Full pressure is used on only four cars, one of these having an engine of under 120 cu. in.

The gear wheel type of oil pump is still most popular (64 per cent), but the plunger pattern has gained (24 to 30 per cent). Only two cars have no pumps at all, one using the flywheel to lift the oil to galleries and the other an aluminum disk attached to the crankshaft just in front of the flywheel, the latter being outside the crankcase and the disk within it. In 78 per cent of engines the oil pump is submerged within the crankcase sump; plunger pumps are more often operated by an eccentric through strap and coupling rod and located in the sump than by cam and spring return alongside the camshaft.

## Brakes

Aluminum pistons have increased very appreciably during the year, while steel and composite metal types have disappeared. The straight-sided type is almost universal, both the hourglass and the slipper having failed to give satisfaction. A big vogue was expected for the slipper type two or three years back, but manufacturing difficulties and trouble in overcoming piston slap when aluminum is used for it are variously put forward as reasons for its failure.

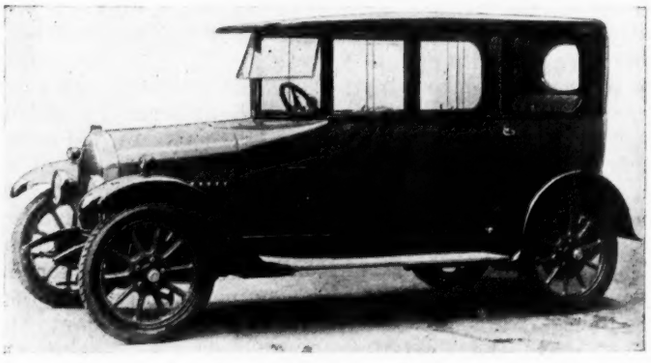
More than 50 per cent of the straight-sided aluminum pistons are of the split-skirt design with an internal expansion ring, a type which very considerably reduces piston slap in a cold engine. A bare majority, both of cast-iron and aluminum, have no scraper ring either above or below the piston pin; 22 per cent have a scraper in the skirt, and in 24 per cent the lowest gas ring combines the latter function and that of a scraper, its groove being beveled off below and drilled through to the interior.

Piston pins floating in the bosses as well as in the rod and those which are fixed in the bosses are almost equally used, 35 and 37 per cent respectively, the remaining 28 per cent being fixed in the rod. In approximately 60 per cent of the cases where the pin is free to rotate in the piston bosses no bushing is provided and in 90 per cent end-plugs of brass or aluminum prevent damage to the cylinder walls; spring steel rings in grooves are used in the remainder. H section connecting rods still find by far the most favor, tubular rods being few and far between.

Thirty-seven per cent of pistons have two rings and 58 per cent three. There is a solitary example with one ring only, four have two and one each five and six.

## Valve Head Material and Design

A great many British makers are even more secretive concerning the alloys used in the various parts of their chassis than they are in regard to planned and actual



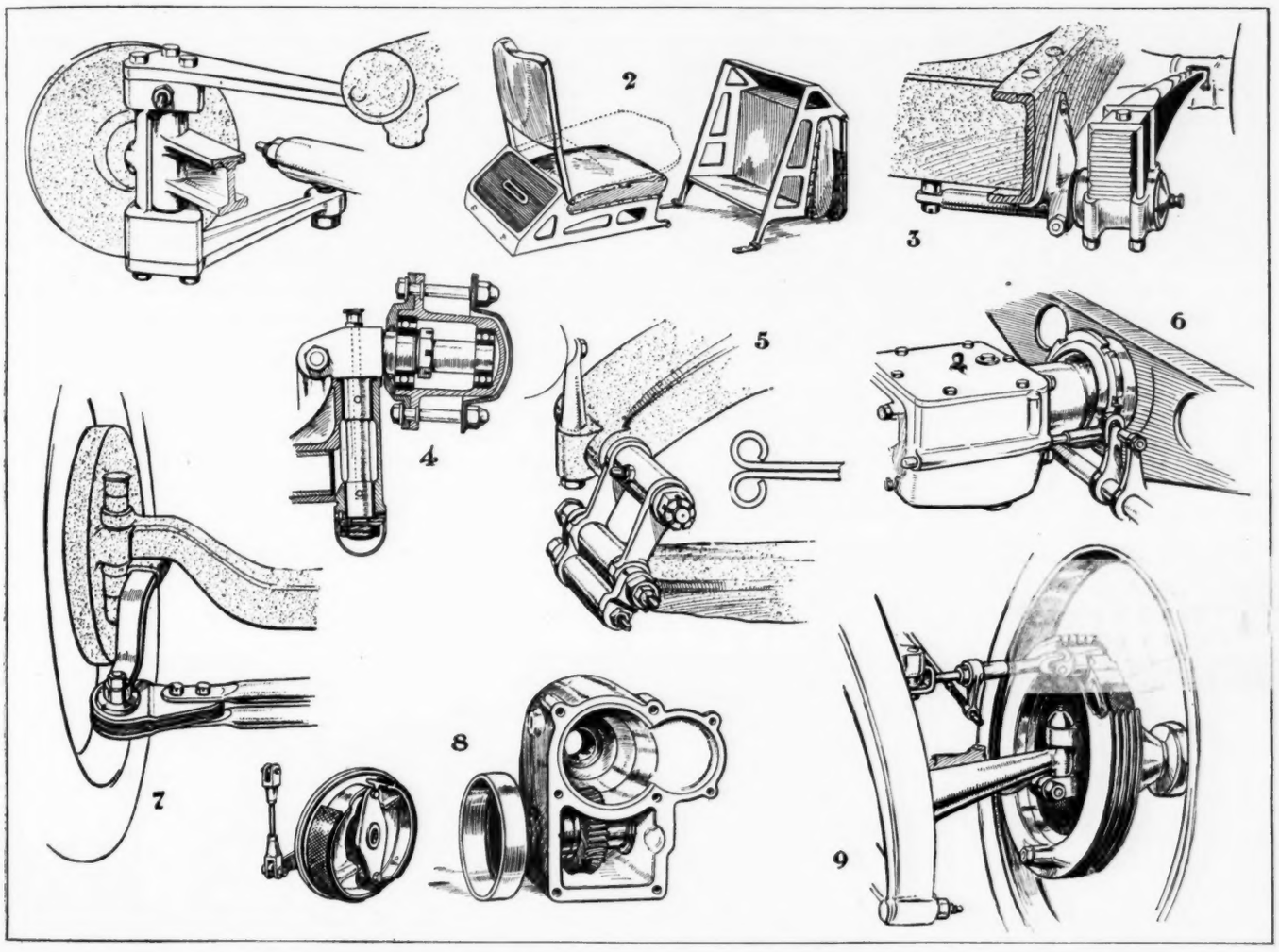
*Sedan body with V front on 11-hp. Humber (68 x 120 mm.), all side windows divided vertically with front half sliding back to open*

output, but from information provided in respect of 70 odd models it would appear that 3 per cent nickel steel is by far the most widely used material for valves. Sixty per cent of the valves are of this alloy, 32 per cent of nickel chrome steel, 4 per cent of cobalt chrome and 4 per cent of tungsten steel.

## Carburetion

The normal Zenith carbureter, as distinct from the triple-venturi type, is by far the most widely used on British cars (51 per cent), Claudel coming next with the diffuser type (11 per cent). Six per cent have the car makers' own carbureters.

There is more evidence than ever before of attempts to improve vaporization. In the first place, there is more care in designing induction tracts with a view to preventing or reducing deposition of fuel, and more examples of definitely planned heating systems for the mixture. At the same time there is nothing strikingly original. There are more combined manifolds, some with hot spots opposite a right-angle bend in the induc-




*1—New 12-hp. Calthorpe swivel axle with separate levers permitting left and right hand units to be identical. 2—Hinged and folding seat combined with footrest on new Singer Ten; base is of cast aluminum. 3—Trunnion support of cantilever spring on new De Dion. Has extension secured to cross member of frame as shown, to eliminate torsional stress on side member. 4—Front hub and swivel axle design of new Clyno light car. 5—Beardmore double shackle, permitting use of two full length spring leaves ending in opposed eyes as shown in inset view. Planned to reduce risk of breakage of top leaf. 6—Spherical support enclosing universal joint at front end of gearset mounted as unit with torque tube on new 15-hp. Singer Six. 7—Peculiar joint at end of twin cross coupling rod of steering on Bugatti straight-eight. Layers of fibre separate the two cranked plates. Plan is said to reduce weight, impart slight degree of flexibility and require no lubrication. 8—Servo details fitted to Sunbeam Six when front brakes are provided. Unit on right bolts up to gearset. Servo drum has worm drive through ratchet on worm wheel shaft. 9—Part sectional sketch of front wheel brakes on Sunbeam Six, fitted at extra cost of £125*

tion passage and others with merely a large area of that passage heated by contact with the exhaust manifold. Daimlers have a heated spot arranged by casting a series of four fins on the exhaust manifold so that these alternate with adjacent fins on the separate induction pipe when the latter is in place.

Hot air as the means of assisting vaporization is rarely depended upon; in fact, a muff on the intake pipe is now exceptional. But on the new Morris Six an aluminum exhaust manifold on the left (the valve side) has an air intake pipe cast with and above it and running along the full length, with a bell mouth facing forward; at the rear end the air pipe has a flanged joint with a separate extension pipe running round the back of the cylinder block to the carbureter, which is on the right side and bolted up directly to a flange at the end of a transverse passage in the block. This arrangement necessitates a long intake passage, but as the bell mouth of the latter faces forward close behind the radiator fan a slight degree of forced induction may be expected.

The majority of makers still rely for vaporization solely upon the cast-in induction passage, usually leading from a carbureter flange on the opposite side of the cylinder block from the valves; 41 per cent of engines have nothing except the water jacket thus afforded to the induction tract. Only 8 per cent have a water jacket for a separate induction manifold, but 34 per cent have integral inlet and exhaust manifolds, while exhaust jackets occur in 7 per cent.

Gravity fuel feed is still most popular, and, on account of the large number of new small models, has increased from 54 to 64 per cent. Vacuum, after rising to 39 per cent last year, has now gone down to 31. Pressure systems have fallen still further, from 7 to 5 per cent.

### Electrical Equipment

Magneto ignition is still used on the vast majority of British engines of all sizes, battery ignition alone being found on only 12 per cent, while magneto and battery are on 3 per cent. Wolseley, who used the battery system on three models in 1922, puts a magneto on a new "14". Daimler has adopted battery ignition for the new small

sixes because of the difficulty of getting a magneto to stand up to the high speeds at which these engines are designed to run. Perhaps the small size of the majority of British engines has not caused magnetos to give rise to such serious engine-starting difficulties in cold weather as in the case of the larger American engines in the lower atmospheric temperatures of U. S. A.; and the excellent low-speed sparking of British magnetos may have something to do with the satisfaction afforded by them.

The two-unit starting and lighting system occurs on 89 per cent of British cars, which is much the same as last year; 65 per cent have 12-volt outfits and this also represents no material change. But there has been a big stride toward making a positive-drive for the generator universal practice, though 43 per cent still are belt-driven, this figure comparing with 80 in 1920 and 62 per cent at last year's show.

Roller bearings have made no headway; in fact, for every part of British cars except the pilot of the gearset and the differential they have receded, and in those two items there is no change.

Ballbearing crankshafts remain at 6 per cent, 89 per cent have white-metal-lined journals, the remainder being roller, or combinations of ball and roller, and ball and white metal. Most of the engines of below 90 cu. in. capacity have two-bearing crankshafts, while three bearings are mostly used for sizes above that. There is an increase in the number of counter-weighted crankshafts of both four and six-cylinder engines, but approximately 80 per cent are without this refinement. Bronze is used for camshaft bearing in 53 per cent of engines; in 27 per cent die-cast white metal occurs, while the remainder are represented by 15 per cent cast iron and various combinations of ball, white metal, cast iron, bronze and roller.

In the gearset, ballbearings predominate for the mainshaft (87 per cent) and the layshaft (71 per cent). For the last named shaft plain bushings are, however, increasing at the expense of ballbearings, having risen from 14 to 22 per cent, and that, too, without any provision for allowing the shaft to be at rest while the direct drive is in use. Plain bushings are used in the majority (60 per cent) of pilot bearings, ball in 30 per cent and roller in the remainder.

In connection with the layshaft, it is to be noted that there is an increase in the number of British cars having a stationary shaft of round section secured to the casing by friction (end nuts, for example) or by pegs and end caps, thus permitting the use of plain bushed gear sleeves and eliminating splining on this shaft.

In 82 per cent of rear axles ball journals are used, almost invariably with separate double-thrust ball washers, for the combined radial and thrust ballbearing rarely appears either at the sides of the differential casing or backing the bevel pinion shaft. The latter in most cases has two widely spaced ball journals behind the pinion, for there are only isolated examples with a "nose" bearing. The 15 per cent of roller bearings in rear axles are mainly Timken, but there are a few parallel sided rollers in use here with ball-thrust races.

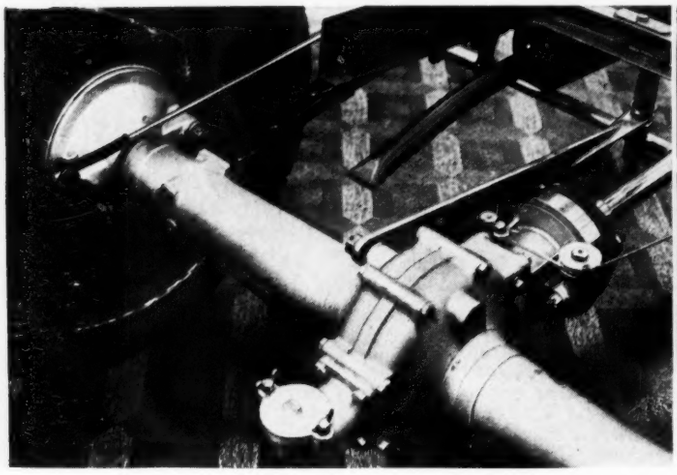
For the wheels ballbearings again predominate, being found in nearly 80 per cent. In the front wheels rollers have receded from 27 to 15 per cent and from 17 to 14 at the back. Ball and roller combinations appear in a few cases. Differing from the state of affairs adjacent to the differential, ball journals in the front wheels are supplemented by ball thrusts only in cars of costly types.

## Clutches and Transmission

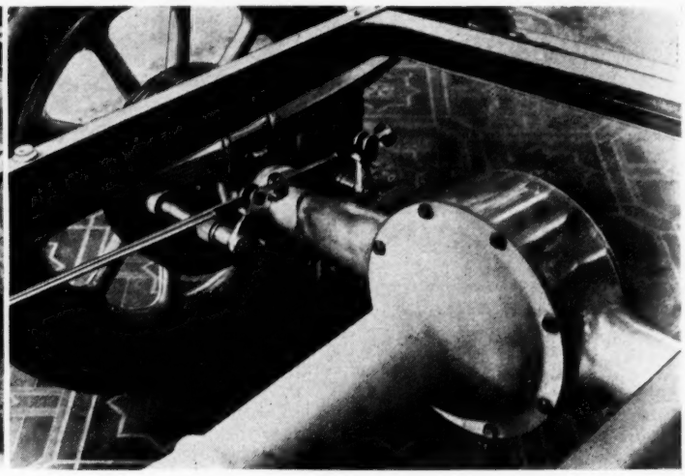
Cone clutches have remained stationary at 52 per cent and half of these are of the inverted pattern with a non-adjustable spring between the flywheel and the cone. Dry single-plate clutches have advanced only from 33 to 36 per cent, the dry multi-plate and multi-plate in oil having receded from 8 to 6 and 6 to 5 respectively. Rover, on the 12-hp. model, remains the only user of a single plate running in oil. Vauxhall, using a multiplate metal-to-metal in two models, runs the plates without oil, successfully depending for lubrication upon occasional charges of dry graphite introduced into the casings.

For both cone, dry single and dry multi-plate clutches, bonded asbestos fabric is generally used; leather is still used on 25 per cent of the cone pattern and three of the latter have metal-to-metal cones, aluminum to cast iron in one instance. Cork inserts are used by Morris only.

The unit power-plant construction has made a sudden leap forward in popularity (from 27 per cent to 48); this also is obviously due to the large increase in the number of small cars, for there are only two or three new and old models of over 120-cu.-in.-engine capacity with this construction. The unit-with-axle gearset, after increasing from 6 to 10 per cent in 1921, has fallen to 4 per cent; the unit with torque tube system remains the same (7 per cent), the successful 18-hp. and 30-hp.



*All-aluminum axle of 9-hp. Lea-Francis car. Axle halves are integral with brake anchorages and cover plates. Semi-floating type*



*Double banjo type aluminum axle of 12-hp. McCurd car. Torque tube also in aluminum*

Armstrong-Siddeley Sixes being conspicuous examples of cars with this arrangement. Of separate gearsets (41 per cent) two-thirds are mounted directly in the main frame.

Four-speed gearsets have increased, appearing on 46 per cent of cars as compared with 42 last year (50 in 1920). This increase is worthy of note, in view of the larger number of small cars and the general endeavor to reduce production costs. While central control lever on the gearbox cover shows an increase from 29 to 36 per cent, three makers who have adopted it in new models and two who have used it for a year or two are offering to supply right-hand control at buyers' option.

There are isolated examples of gearsets with all wheels constantly in mesh brought into use by dog clutches, but the sliding pinion is general. A new two-stroke engined light car, introduced by Leylands, is provided with a planetary gearset.

Slightly over half the total number of cars have open propeller shafts; in the remainder there are half a dozen examples of the semi-inclosed arrangement, where a short and exposed coupling shaft with a universal joint at each end runs from the gearset to the propeller shaft proper in a torque tube. Of open shafts 49 per cent have fabric disk joints at both ends; 27 per cent have a metallic joint front and rear, while the remainder have a metallic joint at one end and a fabric type at the other. For inclosed shafts the star type joint is used in 61 per cent of cases, a fabric disk in 26, sliding pot in 9 and steel disk in 4 per cent; all except the latter, which are new, represent but slight variation from last year.

## Rear Axles and Springs

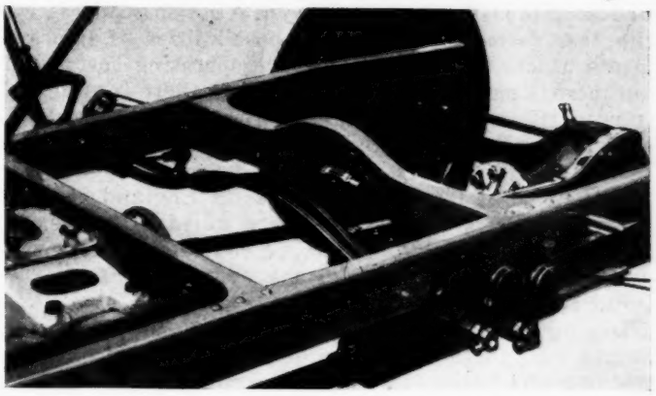
Aluminum for rear axle casings is increasing gradually, and to a greater or less extent the light metal now appears in the axles of 31 per cent of British cars, half of these having the center formed of it. In only five cases is a truss rod used. There are six examples of all-aluminum axles with tubular liners. One is of the full-floating variety, two are semi-floating and three are three-quarter floating; all occur on cars of less than 100 cu. in. capacity. In one case a unit casting in aluminum of the double banjo pattern is used without steel liners. There is one other example of an all-aluminum axle casing without liners; it consists of two units bolted up at the longitudinal center line of the chassis and each has integral spring seats, brake supports and even brake cover plates; it is, of course, of the semi-floating type.

Built-up axle housings represent 40 per cent. The pressed steel, double banjo axle casing occurs on 16 cars (a 30 per cent increase), 8 full floating, 7 semi and 1 three-quarter floating.

Taking axles of all types, the full-floating variety has now but a slight lead over the semi-floating. There has, in fact, been a great increase in the latter, for it has risen from 7 to 42 per cent, while the three-quarter floating has receded from 42 to 12 per cent. Once again this is a variation in trend which can be put down to the increased number of small cars.

Spiral bevel final drive has increased still further (from 63 to 78 per cent) at the expense of all other types. Worm gearing now occurs on 19 per cent of British cars (11 bottom worm and 8 top worm), as compared with 24 per cent last year. Straight bevels are nearly defunct, at 3 per cent. Torque and propulsion are taken by the springs in 72 per cent of cars with open propeller shafts, which represents a slight gain.

Springing systems, taken generally, are quite orthodox, only two cars in production having anything abnormal and those merely to the extent represented by duplicated (super-imposed) quarter-elliptics. Half-elliptics at both



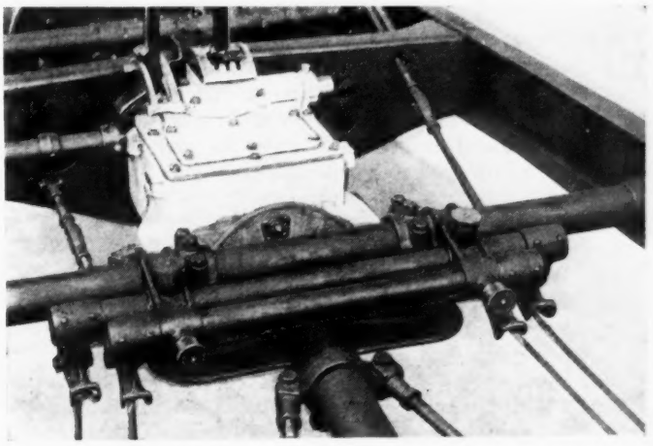
*Swift Ten cross shafts and levers for cable brake connections. Levers are integral with grooved disk ends*

back and front are found on 43 per cent of cars, the same as last year; cantilevers at the rear with semi-elliptic in front have dropped from 22 to 15, while quarter-elliptics all round have increased from 20 to 25. There are two cases of quarters in front and cantilevers behind. The suspension, consisting of one full length inverted semi-elliptic with two leaves, at each side of the car (the type used on the original Oldsmobile and Knox—*Editor*) has been discarded as an uncommercial proposition.

Spring checks (shock absorbers) of the frictional and hydraulic types are being standardized in a few cases, even on such low-priced cars as the Morris. Spring gaiters (covers) are even more widely in evidence as part of the standard equipment. But it is recognized that these additions represent a very unsatisfactory way of overcoming the failings of the main system of suspension; there is obviously something very wrong when it is necessary first to reduce inter-leaf friction to the minimum by inclosing the springs in covers insuring continuous lubrication and then to add checks to introduce a frictional effect upon recoil.

## Braking Systems

British car manufacturers are very reluctant to adopt front wheel brakes, and several factors can be mentioned as explaining why they are not in a hurry to follow the lead of France. The first is that they have had it forced upon them that any development which adds materially to the cost of production must be viewed as



*Equalizer shafts for cable brake operation on 12-hp. Albert. Transmission is unusual in having fabric universal at front end of enclosed propeller shaft*

undesirable at the outset. They are not so ready as was the case formerly to welcome possibilities of improvements unless these tend to reduce operating costs without increasing production costs. Next, there is practically no demand for these brakes on the part of prospects and manufacturers contend that the feature would not assist the sale of cars.

The cause of front wheel brakes in England received a severe setback when Rolls-Royce failed to fit them to the new 20-hp. model. As Royce considers them either unnecessary or undesirable, the average car buyer is content to let it go at that.

Dealing with braking systems as they are, there has been a still further increase of all brakes concentrated on the rear wheels. Two sets of expanding shoes within the rear wheel drums now appear on 74 per cent of British cars; internal and external or both external are used on only isolated examples, while 23 per cent have brakes on transmission and rear wheels. Even where the latter combination occurs, external wheel brakes are rare, being applied in only 5 per cent of cars all told. There are a few cases of the transmission brake on the final drive shaft, but the vast majority are at the back of the gearset.

### Steering, Wheels and Tires

Practically no change has occurred in steering gears, the worm and wheel being used on 56 per cent of cars, worm and segment on 22 per cent, and rack and pinion, planetary and cam type on the remainder.

Pressed steel, hollow-spoked wheels increased from 48 to 56 per cent; the disk type has fallen two points (29 to 27), wire from 18 to 15 and wood from 5 to 2. Clincher-edge tires remain almost universal, though a move toward the straight-side pattern has commenced, for these are now standard on 6 per cent of British cars, including one of the smallest (Singer Ten) and the largest (Rolls-Royce).

Standardized for the first time by an appreciable number of British car makers, cord tires have a 43 per cent representation of which 40 are Dunlops. With cord and canvas tires, Dunlops are used for 84 per cent of models, next being the Avon, with 5 per cent, and then Michelin with 3 per cent. American tires are named as standard by only one British car maker, who specifies Firestone.

For accessory drives from the engine—magneto, generator and water pump—the toothed or serrated rubber ring type of coupling is attaining wide use. In a similar type the metal plates have a series of round holes through them to accommodate suitable projections from the rubber coupling piece. In both types there is one more serration or hole on the driving plate than on the driven, the rubber being molded to suit, so that a Vernier adjustment is available in the case of the magneto drive to vary the timing, the rubber in all cases absorbing any slight irregularity in alignment which may exist between driving and driven shafts.

Overhead valve rockers, which in the opinion of some makers must be lubricated by oil under pressure, are now often supplied by drips from an overhead pipe, while in two or three new engines of this kind hand-filled oil containers are used; in one case (8 hp. Standard) an oil cup is located at one end of the hollow rocker shaft and oil exudes from the latter after slowly passing through a wick-surrounded copper tube with a series of 1/16-in. holes drilled in it.

Vauxhall is the only user of the Lanchester Harmonic Balancer for four-cylinder engines, and only Daimler and Lanchester use the Lanchester friction damper at the end of the crankshaft of Sixes; but this latter feature is embodied in all models of the Daimler line.

Several makers are using hoods (bonnets) extending rearward behind the end of the engine and thus inclosing the gravity fuel tank within the engine space. This scheme shortens the cowl to a corresponding extent and carries the top half of the dashboard further to the rear; it appears to simplify the tank fixture, makes the cowl a slightly simpler proposition to fit, permits of more securely fixing the instrument board and puts the fuel-filling spout where it can be reached without disturbing the front passenger. In addition, the tank position discourages that objectionable feature, "drumming," which is difficult to eliminate when it occurs with the tank surrounded by the cowl.

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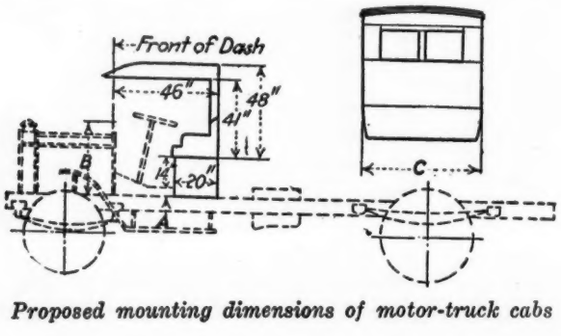
# Proposed Truck Cab Standard

EARLY last spring the Standards Committee of the Society of Automotive Engineers decided to undertake the standardization of motor truck cab mounting dimensions as it was considered important to make possible the production of stock cabs in order that users might not be obliged to have cabs specially designed with the resulting loss of time and added cost. Information was obtained from truck builders as to the mounting dimensions required for cabs used on their trucks. This information was tabulated and a tentative recommendation based thereon. The recommendation was reviewed at the last meeting of the Truck Division of the S. A. E. Standards Committee together with comments which had been obtained from truck and cab builders and as a result the recommendation was revised in some details.

The accompanying table of dimensions was approved by the Division members subsequent to this meeting and will be submitted at the next Standards Committee meeting for adoption as S. A. E. Recommended Practice.




*Proposed mounting dimensions of motor-truck cabs*

| Truck Capacity, tons | 1, 1½, 2, 2½ | 3, 3½, 4, 5 |
|---|---|---|
| A | 3½ | 4 |
| B[1] | 35 | 39 |
| C | 48 | 56 |

[1] Minimum for windshield lower edge.
Where cab sides, doors or side curtains are used, care should be taken that the driver's vision is interfered with as little as possible.

# N. A. C. C. Service Managers Approve Local Service Associations

**Flat-rate system appears to have almost universal approval. Service contracts are being granted to independents in open territory. Boxing for shipment and parts taxes discussed.**

By J. Howard Pile

THE flat-rate system of charging for service now has the approval of practically every factory of importance. The N. A. C. C. Service Managers, meeting in Chicago, Nov. 14 and 15, devoted only a little time to the discussion of this important problem, but the very lack of discussion was significant. Three years ago at a similar meeting, there was almost universal objection to the plan. Last week all except two or three service managers appeared to be entirely sold on it. This apparent acceptance of the flat-rate system throughout the industry was an outstanding feature of the convention.

Definite indorsement of local service associations marked another reversal of opinion on the part of factories. The service managers have made a gradual about-face in their attitude toward local service associations, after having opposed them rather strenuously several years ago. At the Chicago meeting last week they agreed to get solidly behind a movement to form additional associations and to support those already in existence.

Factory practice in granting service contracts to independent service stations, reducing parts costs by shipping in carload lots, more efficient boxing for shipment and the payment of parts taxes were the other topics of importance discussed at the meeting.

Talk about flat rates centered almost entirely upon methods of possible improvement. R. A. Shelly, Dort service manager, stated that a recent census of dealers throughout the country indicated 75 per cent to be in favor of flat rates. W. R. Webster, Overland service manager, confirmed Shelly's statement as to the success of the plan and stated that some of the Overland branches were working the plan out with satisfaction to all parties.

## Local Associations Discussed

The local service association picture was presented from the viewpoint of the owner, the dealer and the manufacturer. Alexander Johnston, editor of Motor, speaking from the owner standpoint, told of the great need for better service and told of thousands of letters received annually by his publication from car owners asking for service information of many kinds. The flat-rate system, he said, has been instrumental in reducing materially the number of kicks from owners.

Eugene Silver Cole, a Chicago distributer, gave the dealers' opinion of the service association. Using the experience in Chicago as an example, he pointed out that after an association is finally put into working order the dealers really begin to find out the great benefits they can obtain from co-operative action and from the free exchange of information and ideas. Presenting the factory view, B. B. Bachman, chief engineer of Autocar, said that designing engineers will have to pay more attention to service problems in the future than they have in the past. He said that local service associations will help to build up better service methods, which will materially benefit the factories.

Shipment of parts in carload lots means a considerable saving of transportation costs, discussion on this subject brought out. In many cases the shipment of new cars does not fill a box car to its minimum capacity and the dealer either has to pay a less-than-carload rate or the carload rate when the car is not full. The additional weight can in many cases be made up with parts shipments which brings the costs down considerable. The dealer can profit by this through placing his orders sufficiently in advance to allow the factory to make shipments to fill the cars.

## Confusion on Parts Taxes

Considerable confusion exists as to which parts are taxable and which are non-taxable. Many factories have sent duplicate copies of their parts books to the Tax Bureau for the marking of taxable parts. It has been observed that there is no seeming uniformity in the markings when the books are returned.

Discussion about granting parts discounts to independent shops showed in development a very much more liberal policy by practically all manufacturers.

Boxing and crating of parts for shipment were discussed by Jefferson Caylor of the General Box Co., Chicago. He said that there was hardly a box or crate that could not be reduced in weight by a real study. In many cases savings of 50 per cent have been effected.

Lubrication and inspection policies did not show a great divergence, but several ideas that are worth noting were brought out. W. M. Warner, Cadillac service manager, said that the Chicago distributor uses a small paster which is stuck on the speedometer. On this paster is noted the mileage reading at which the car should be brought into the shop for inspection. When the season mileage and the figures on the paster agree, there is a direct reminder to the owner. The period of free inspection varies from the usual 90 days upward and some dealers are making a flat charge in inspection, oiling and adjustment for six months or a year, this charge running anywhere from $10 to $50. The Simons Sales Co., handling the Overland in Detroit, has such a service for one year for $25.

# Snow Removal Program Will Make Winter Driveaways Possible

**Bureau of Roads seeks co-operation from highway officials to keep transportation arteries open. Car shortage makes action imperative. Will safeguard steady outlet for production.**

DUE to the fact that highways have been blocked by snow, automobile manufacturers have been forced to rely entirely on the railroads for winter shipments. Driveaways have been out of the question, for co-operation to keep the highways open has not been given by the Northern States.

In the event of further freight car shortages, the industry may be greatly hampered unless driveaways can be resorted to and this, coupled with the fact that all movement of freight and commodities is more or less delayed when the highways are impassable, has brought concerted action by officials, manufacturing interests and the Bureau of Roads.

The Bureau has shown the need of co-operation, citing figures compiled by the National Automobile Chamber of Commerce.

Preliminary reports made to the U. S. Department of Public Roads on the snow removal program, recently mentioned in AUTOMOTIVE INDUSTRIES, indicate that the Northern States will co-operate with the Department's efforts to keep the main arteries of automobile traffic clear of snow.

State highway officials have been asked if they can arrange to supply the necessary labor to man snow shovels, provided the Bureau will furnish the necessary equipment, which the Bureau has agreed to do out of surplus stocks.

Tentative routes in Michigan, Illinois, Indiana, Ohio, Pennsylvania, Maryland, New Jersey, New York, Massachusetts and Connecticut have been mapped out by the bureau and these have been submitted to the highway officials. The accompanying map shows the layout of these projected routes.

EFFORTS to have a snow removal program carried out in the past have failed because of the refusal of certain highway officials to co-operate. Thus inter-state highway transportation has been made impossible because of certain neglected stretches of road.

Under the existing Federal laws none of the money appropriated by the Federal Congress can be used in snow removal work. However, the emergency can be met by the Bureau of Public Roads furnishing the equipment, free of cost, and the States furnishing the labor to perform the work.

State officials have been requested to submit figures showing the approximate cost, based on the number of miles of highways which must be kept open if adequate highway transportation is to be maintained. These figures are being compiled by the Bureau.

Figures furnished by the traffic department of the N. A. C. C. show that in the past automobile manufacturers had to ship the greater part of their product by rail during the bad winter seasons, because of the sole fact that highways were impassable.

The percentage of driveaways from the factories, figures show, are very high during the summer months, because manufacturers and dealers alike find it more advantageous to move their products in this manner.

September shipping reports from factories, covering 80 per cent of the total automobile production, indicate a total of 26,288 carloads of automobiles shipped by rail, 30,322 driveaways and 8754 shipped by boat. If the snow removal program for the coming winter can be carried through successfully, officials of the N. A. C. C. declare that almost the same percentage of driveaways can be maintained as during the summer months.

If the record production of motor vehicles is to continue there must be no impediment put in the way to dam the outlet. The movement of vehicles must be free and measures must be taken to prevent unforeseen rail tie-ups from inflicting damage on the industry. A great unit of transportation should not be dependent wholly on other transportation units for its livelihood.

**THIS winter the railroads will not be able to handle all the traffic in the congested manufacturing centers of the North and East. Automobile manufacturers may feel the pinch when it comes to shipments of raw materials and finished products. Open highways will be all important.**

* * *

**This article tells of the movement on foot to keep the highways cleared of snow. Indications are that co-operation between the Bureau of Roads and highway officials will produce a program of action that will keep the highways open and permit winter driveaways. This is a step of great importance to the industry.**

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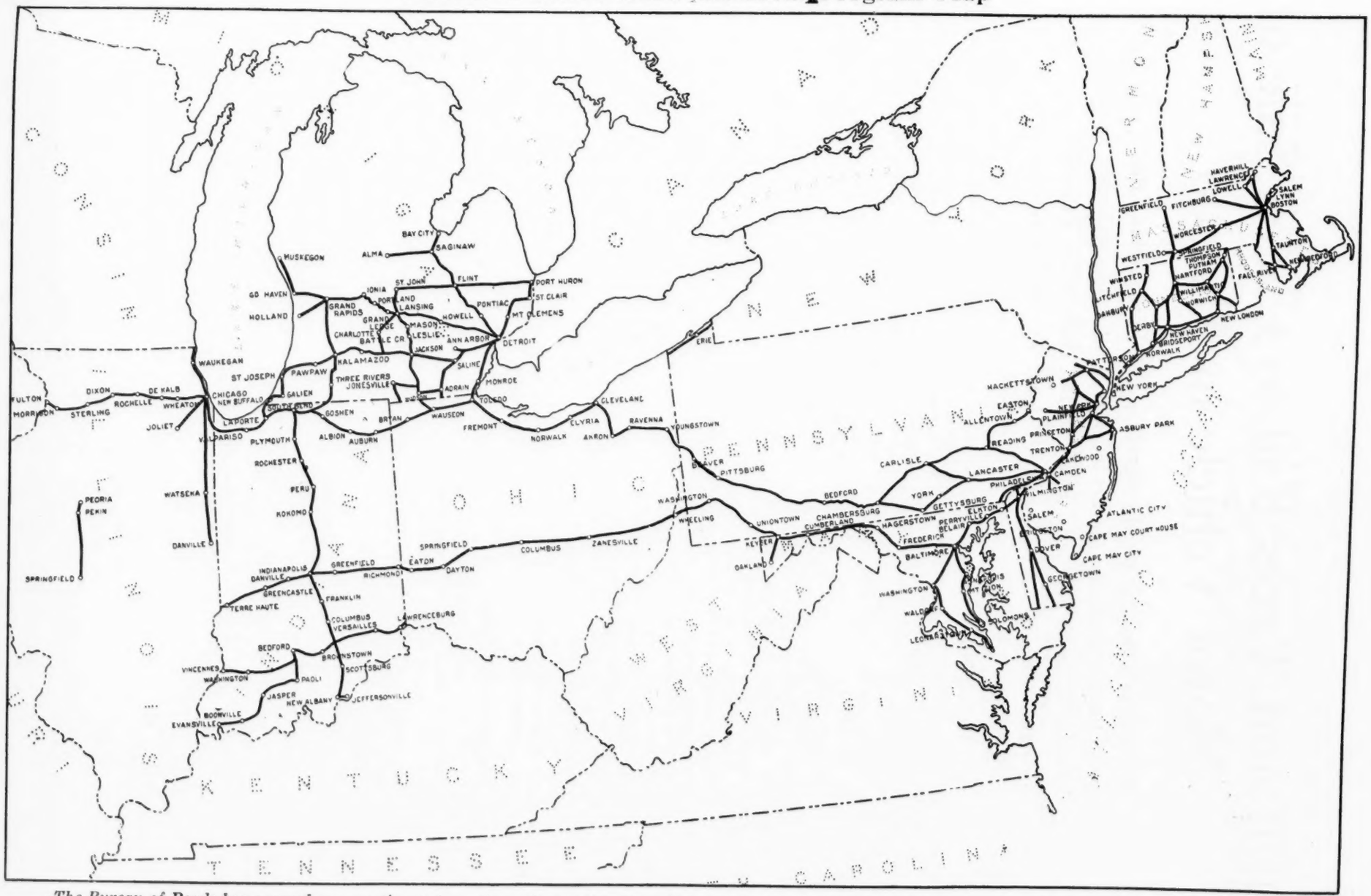
THE wholesale price index in Germany advanced 114.3 per cent during the month of October, compared to an increase of 52.5 per cent during September, and is now 57,683 in automobiles compared with index price of 100 in July, 1914, according to the automotive division of the Department of Commerce.

# Bureau of Roads Snow Removal Program Map




*The Bureau of Roads has secured co-operation to keep the main arteries of traffic between the largest industrial centers free of snow during the coming winter. The map shows the tentative routes, laid out by the Bureau, in Michigan, Illinois, Indiana, Ohio, Pennsylvania, Maryland, New Jersey, New York, Massachusetts and Connecticut. The successful carrying out of this program will permit automotive manufacturers in such cities as Detroit, Flint, Saginaw, South Bend and Indianapolis to continue driveaways throughout the winter*

# Tariff and Taxes Fail to Check Sale of Motor Vehicle in Mexico

**Industry is making marked progress in face of obstacles. Better off than other lines. Market for heavy duty trucks widening. Metered taxicabs popular. Business not confined to Federal district. Dealers are branching out in all directions.**

MEXICO CITY, Nov. 15.

THE automotive industry in Mexico is continuing on the upgrade and distributers and dealers are looking forward to a continuation of sales, despite several unfavorable factors which recently have made their appearance. Some of the automotive establishments are being enlarged and in other activities the trade is showing its confidence in the future. In fact, the industry is progressing more satisfactorily than other lines of commerce.

One of the larger companies here has just begun an expansion program that will place its products on sale throughout practically every part of the Republic. This firm, in addition to its large sales room and service establishment here, has already established itself in Jalapa, Puebla, Monterey, Guadalajara, Tampico and Aguascalientes and will have opened additional establishments at Leon and San Luis Potosi.

The use of automobiles and automotive equipment is increasing outside Mexico City, with a consequent increase in the number of sales rooms and garages in other localities. Mexico, like other countries of the world, is turning more and more toward the automobile to solve its transportation problems and many of the tendencies so noticeable in other lands are duplicated here.

### Used Car Serious Problem

THE problem of the used car is acute just now and distributors and dealers are bending every effort to clean their sales rooms of such cars, many of which were taken in trade on the sale of new models. This condition probably is not met with in some of the other countries of Latin-America, but it is an important factor here and the problem is being worked out slowly.

A recent decree places an import duty of ten per cent upon automobiles, which formerly had been admitted free. In addition, consular fees have been increased from three to five per cent and with taxes and other fees distributors bringing cars into the Federal district here will be called upon to pay a total of eighteen per cent. It is, however, the general opinion of the distributers that this will have scarcely any effect on the industry, and they expect that sales will continue at the present or at higher levels.

Truck use is increasing, not alone of the smaller types, which are extensively used in taxicab and bus service here, but of the larger sizes as well. Hundreds of these smaller buses are running about the streets of Mexico City, but a start has been made in the operation of greater capacity models. The American Motors, S. A., which handles the local distribution of one of the better known trucks, has recently disposed of six buses to the local street car company to act as feeders for its suburban car service. Another will be used by a passenger carrying line between this city and Toluca.

Dealers are encountering little difficulty in regard to collections from buyers. Cars are sold here on terms varying from three to four months, and payments on the whole are good. It occasionally happens that a bill is not met promptly, but bad debts are few. There is in all lines a willingness to meet obligations and a serious effort is almost invariably made to do so.

### Distributers Keep Up Stocks

IN keeping up stocks distributers generally prefer to have their products come in a regular order, so as to avoid delay and demurrage charges. For this reason it is exceptional for very large shipments to enter at any one time. Cars and trucks, however, are kept in the sales rooms at all times and there is a constant flow of new vehicles from the factories.

The use of taxicabs seems to be undergoing something of a change. Not long ago a company was formed to try out a system of cabs with meters, the charge for the service being made on the basis of distance traveled as shown by the recording instrument mounted in plain sight of the passenger. The system has been a success thus far, and now it is stated that plans are being formulated for further development of this system. The representative of a large taxicab company, which now operates fleets in a number of North American cities and which has recently organized a similar service in Paris, has spent some weeks here and at Guadalajara and Puebla investigating the field for such service as is given in other cities.

Mexico, it is felt, offers a potential market for at least 100,000 automobiles, although at present there are in operation somewhere between one-fourth and one-third of this number. But in two or three years the number of vehicles has been doubled, and this during a general business depression following a long period of political uncertainty. The surprising achievement, which has brought Mexico into the front rank of motor-using countries, gives only a suggestion of what will be done as soon as there is a return to general prosperity.

### Automotive Statistical Data

IN gathering statistical data on the number of automotive vehicles in Mexico, many difficulties are encountered, but it has been found that cars and trucks are being used in considerable numbers in many districts of the Republic. Listed alphabetically the following districts figure largely in the ownership and use of automobiles: Aguascalientes, Chihuahua, Ciudad Juarez, Torreon, Ensenada,

Vera Cruz, Guadalajara, Guaymas, Matamoras, Mazatlan, Merida, Mexicali, Mexico City, Monterey, Nogales, Nuevo Laredo, Piedras Niegras, Progreso, Saltillo, San Luis Potosi, Tamaulipas and Tampico.

In none of these districts are there less than 100 or 150 cars and trucks and the numbers range up to something like 14,000 or more in the Federal district. Trucks figure more largely than is generally supposed, there being one for each six or seven-passenger car.

Tractor use is on the increase, and they are to be found scattered throughout the Republic in varying numbers. The Tampico district is believed to have more tractors than any other section, with the Federal district and Aguascalientes coming next with approximately the same number.

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# Problem of Industrial Unrest Deserving of Wide Attention

***Recent works give insight to situation from many angles. Cost keeping furnishes subject for another new book.***

WE have had so much of strikes recently that many will be tired hearing about them and want a change, but for those who wish to study their causes more fully there are several new books which give insight into industrial relations from different angles.

"Labor and Democracy" by William L. Huggins, published by The Macmillan Company, deals principally with the Kansas Court of Industrial Relations and hence handles the problem of industrial unrest from a legal standpoint. As presiding judge of this Court, Huggins is well qualified to write from the legal side.

Socialism and Bolshevism as solutions to industrial unrest are touched upon and dismissed in short order. The only possible solution is given as follows: "The application and strict enforcement of the principles of industrial justice by the orderly processes of the law will restore and maintain industrial peace." Gompers would probably reply, "! ! !."

Incidentally it was this Kansas Industrial Court Law that William Allen White, editor of the Emporia *Gazette*, was charged with violating when he placed a card in his office window expressing "49 per cent sympathy with the shopmen on strike."

* * * *

While on the subject of strikes it might be well to balance the ration by reading a study of the labor unions themselves. The history of the butchers', bakers' and candlestick makers' unions as well as the aims and motives of all the other unions are given in "Industrial Unionism in America" by Marion Dutton Savage, published by the Ronald Press, New York.

Miss Savage attempts to show the trend of the whole labor movement and we think that it is ably done.

The book should make interesting reading no matter what one's attitude toward industrial unionsm.

* * * *

Material of distinct value to production managers, foremen and cost accountants of machine shops is offered in a new book by W. R. Basset and Johnson Heywood, entitled "Production Engineering and Cost Keeping," published by McGraw-Hill Book Company, Inc., New York.

Because of the very general information given as well as the detailed description, this work will be of assistance to executives who wish to get a rather quick grasp of the subject without the necessity of wading through much technical matter. On the other hand a very concise idea can be obtained of any step in machine shop practice.

Cost keeping is very thoroughly covered. While overhead costs are very closely figured in larger machine shops and particularly where a single standard product is turned out, there is often great difficulty in connection with apportioning these overhead costs properly when a machine shop is small and manufacturing diversified products. The chapter on "Getting the overhead into the finished product" should therefore be of special interest.

* * * *

The World Metric Standardization Council has recently brought out "World Metric Standardization," a very large volume compiled by Aubrey Drury. Those who advocate the adoption of the metric system will find this book to their liking.

* * * *

A book appeared on our desk which we found very interesting reading and we believe that automotive executives will find it so as well. "The Reign of Rubber" by William C. Geer, published by the Century Company, takes one through the entire range of the rubber industry in a non-technical manner. Its interest lies rather in its imparting of general rather than specific knowledge.

Any work which attempts to tell the history of rubber, with all its multitudinous products, in 350 pages must needs condense and cut the material but it means that a great deal of interesting matter is presented without too much of the technical accompanying it.

Having discovered or at least made to realize how vital a part rubber plays in our daily life the reader turns to the final chapter on the future of the product. Here we find that experiments are going on constantly which may broaden the field of application and make rubber even more essential to our civilization. Many of the prophecies appear rather extreme but the field of inventive genius teaches us that hardly anything is impossible.

* * * *

For those who want a textbook on banking and credit which goes further in scope than the ordinary textbook on this subject and omits elementary principles, we suggest the recently published "Banking and Credit" by Davis R. Dewey and Martin J. Shugrue, both of the Massachusetts Institute of Technology. The Ronald Press Company is the publisher.

This book illustrates credit methods and shows the part that banks play in such transactions. The terms and conditions upon which credit is granted are told so that the man who contemplates securing financial backing may easily determine the best way to proceed.

At a time when foreign trade relations are upset and the new tariff bill has focused attention on the problem, it might be well to turn to the chapters on foreign exchange and brush up on this seemingly complex problem.

When we become imbued with the idea of selling without buying as a means of maintaining our position of leadership in the world of trade it is high time to read up on those facts that we have always known and frequently forgotten.

## Plain or Anti-Friction Bearings for Railcars?

### *Hampson Replies to Critics*

*Editor,* AUTOMOTIVE INDUSTRIES:

I am pleased to note from your issue of Nov. 9 that my railcar article has attracted some comment and that various points have been seconded except insofar as they affect your correspondent's own product. It may be of interest to know upon what I based my statements.

The automotive engineer is wedded to anti-friction bearings. He will not give an inch in that direction to save his very soul. That one point is the stumbling block every time railroad men and automotive engineers meet in an effort to get somewhere on the ultimate railcar. Anyone who attends these meetings or reads the discussions can tell you that.

I do not agree that the use of plain bearings involves retrogression or degeneration. I am not now a railroad man nor yet connected with the automotive trade but I have been in both. I have nothing to sell. Therefore, I view the matter from a standpoint of neutrality. If plain bearings in untold millions have stood up and been attended satisfactorily by the very low grade labor that obtains in railroad service, they certainly are entitled to a high engineering rating. That class of labor is what the railroad official has to get along with and he knows from long experience that a minimum of delay and expense accompanies the plain bearing. The statement that "a majority of freight train delays are due to plain bearings" is not borne out by the operating sheets, as I can readily prove.

I am fully aware of the Swedish railroad's experiments with anti-friction bearings under cars and locomotives. But conditions are different there. I am speaking of past and present conditions in the United States. I did not say that anti-friction bearings will not be developed or perfected for railroad purposes. I hope that they will be, for they certainly look like a step in advance, but until they have stood the test of years under the same adverse conditions that have obtained with plain brass bearings, they are not entitled to the same rating.

In mentioning a loaded freight car, my idea was to show this plain bearing under the most severe conditions of operation and maintenance. Any dub knows that you do not view freight cars and passenger railcars in the same way, but I venture to assert that if Mr. Brunner rides a hundred miles on a packing box in a freight car he will feel less fatigued at the end of the journey than if he made the same trip in a railcar constructed by certain of our automotive truck manufacturers. And the freight car is mounted on brasses set in pedestals. The labor of manufacturing, installing and maintenance is done exclusively by men who would not be tolerated for one day in an automotive plant.

Just one more word and I will rest the case of the bearings. Since that article was printed in AUTOMOTIVE INDUSTRIES I have been kept busy answering letters. Except for one letter from an axle manufacturer, they all are favorable. Let me quote from the Lehigh Valley's chief engineer: "Our experience with motor cars indicates that you are very much on the right track in your design of axle with the old type brass bearing. I hope someone will bring out such an axle and bearing, and I intend to try to get them for the cars we have in mind. . . ."

Mr. Guernsey took exception to the title of my article. I meant that the railroads needed the cars—and they do—but they are not buying because they are not satisfied with what is now offered, either from a perusal of specifications or from experience of brother roads that have spent time, money and patience. Right now, there are hundreds of routes where railcars should be employed instead of locomotives. The operating officials know this, too, but are they buying cars? The Short Line R. R. Association alone represents over 400 good prospects and the experience of the score of members who have various railcars is discussed regularly at their Washington meetings. I might add that the remaining 380 do not get enthusiastic and that the points of weakness brought out are invariably bearings and axles.

Now here is a disconcerting thing I have learned around railroad yards. In trying out drawbar pull of railcars you have to hook onto something which may be anything from another railcar to an old box car. I have used a spring balance connected up with levers as the most convenient means of getting a reading. You find plenty of four-wheel trucks (from under freight cars) around the yards and I have noted that it does not take 10 per cent more pull to start those old things than to start the four-wheel truck with anti-friction bearings (alone) from under a railcar. Once started, there is even less difference in pounds per ton pull required to keep them in motion. DONALD A. HAMPSON.

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## Inclined Steering Knuckle Pivots

*Editor,* AUTOMOTIVE INDUSTRIES:

Ludlow Clayden's article appearing in AUTOMOTIVE INDUSTRIES for Oct. 5, entitled "Wheel wobble and other faults in the steering system," brings out several interesting points that should give food for further thought and investigation. It also shows that the automobile, as we know it to-day is yet far from being the practically perfect mechanism that some people would like us to believe it to be.

As for the slaying of popular fancies, while the object sought is most commendable, I can scarcely subscribe to some of the arguments put forth to this end.

Thus, for instance, the "second fallacy" anent the transverse inclining of the swivel pin, the author demonstrates that this construction practically does not neutralize the turning moment about the swivel, due to rolling resistance. In order to arrive at this result the force which in reality is applied at the point of contact

of the wheel on the ground is resolved into a force having its point of application in the middle of the stub axle. If this were permissible, the author would have gained his point; but as a matter of fact this transposition of the force alters the point of application of the force and hence is not admissible. By definition a turning moment is the product of a force by the distance that separates it from its virtual axis of rotation. Under these circumstances it is obvious that the assumption made in the article entirely changes the actual status of the problem, since leaving the force to act at its proper location shows that the inclined swivel axis actually intersects the force, and therefore the turning moment is nil. Does Mr. Clayden mean to infer in his exposé that the several distinguished designers of front wheel brakes, who incorporate the inclined swivel feature, are all "barking up the wrong tree"?

Of course in practice we have the mass of the wheel to contend with, and since this mass may be considered as being concentrated in the center of the wheel, any acceleration of the speed of travel of the car will call forth a force. The point of application of this force *due to inertia* of the wheel lies outside the axis of rotation, in this case the swivel pin, hence the tendency for the wheel to swing around the swivel. For this reason I agree with the author as to the desirability of seeing the advent of a construction having the king pin placed in the plane of the wheel. In the meantime we see another reason for favoring the use of lightweight wheels.

There is yet another statement I fail to see with regard to the so-called unstable equilibrium of the transversely-raked swivel construction. The author says: "Suppose the pivot vertical in side elevation and raked in end view. Then turning either way from mid-position causes the outer end of the stub axle to rise." Surely Mr. Clayden does not mean this seriously. A very cursory glance at Fig. 4b in the article will reveal the very opposite to be true, so that the conclusion of unstable equilibrium arrived at with this construction is entirely misleading.

T. L. REEPMAKER D'ORVILLE,
Engineer Dorville Motor Co., London.

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## Another View Concerning Wheel Wobble

*Editor,* AUTOMOTIVE INDUSTRIES:

I do not agree with Mr. Clayden in regard to several points raised in his article in your issue of Oct. 5 and his previous article about front wheel wobble.

The cause of front wheel wobble is lack of equilibrium, due to the fact that the wheels are attached to the axle by a cantilever construction.

The wheel has always been—and, due to cord tires and detachable rims, is now even more so—a heavy mass. This, by the way, is why wobble is more heard of now than formerly. When the front wheels are directed out of their plane they usually tend to return to that plane. Now if any or all of the construction which supports them or controls them is flexible enough a pendulum action is set up which must be dampened out at once or it will continue to swing in its natural period of oscillations so long as that car speed is maintained constant irrespective of road conditions. I have caused front wheel wobble on an absolutely smooth road by swinging the steering wheel violently and then holding it rigid.

Cars designed with a non-flexible support for the front wheels will, I believe, never wobble due to any cause until some or all the connections become worn and loose—and this will be true no matter how far they are castored. By non-flexible support I mean a stiff chassis frame, fairly stiff front springs with well fitting spring bolts, tight spring clips on real spring supports, stiff front axle, not too much overhang from spindles to spring seat and not too much drop from center of wheel to spring support on axle—in other words, as near a straight front axle as possible—rigid steering tie rod and well fitting tie rod joints, rigid and if possible a straight drag link with correct and not too long drag link springs, and lastly a steering worm construction which is free. If the worm is tight it has the same effect when wobble does start as holding the steering wheel rigid.

Clayden states that friction in the worm damps out the wobbling action. My practical experience indicates that he is more wrong than right except in a rare case where all or most of the flexibility is in the twist of the steering column.

To correct wobble: tighten all loose connections. If due to weak or too flexible connections put plain washers in the spindles and tighten the tie rod and drag link joints. Check the front wheel castor. I have found that the top of spindle should be a little to the rear of the vertical position when the spring support on axle is below the center of the wheel.

One mistake in design on a great many cars is in making the knuckle arm too short. The longer this arm is the greater is the damping effect. A little friction on the end of a long spindle arm will stop almost any wobble.

Castoring of the front wheels so that they will have a tendency to return to straight position ahead after rounding an unbanked turn, or a self-righting action, is obtained only (when the spring support is below the wheel center) by raking the top of the spindle back. This because the point of contact of road and tire is then behind the point at which the knuckle pivot axis produced intersects the road.

If the spindles are castored ahead at the top the wheels are being pushed ahead of the weight of the car and there is the reverse of any self righting. If this is carried too far we have a dangerous condition.

There is no tendency, in my experience, for any plunging with the rearward rake unless the wheels are cut hard around, and this should never be done at speed.

I have known cars to wobble badly with vertical pivots, and think the only argument against castoring them slightly back is that some objection might be raised to the "lea helm" necessary on a crowned road.

In most cases cars never have the same degree of castor after a year's use as when due to the uneven deflection of the front springs and because of the fact that the spring support seldom remains in the fore and aft center of the spring.

FRANK C. CHAPMAN.

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## Radiator Performance Data

*Editor,* AUTOMOTIVE INDUSTRIES:

I have been greatly interested in Mr. Clayden's articles on cooling systems and particularly in the article on steam cooling in the issue of Sept. 14.

As so few data or intelligent matter of any sort have been available on this subject it would seem to me that these articles should be assembled in a pamphlet. I would like also to suggest the subject might well be further enlarged upon with the addition of some data of actual performances of standard types of radiators. There is need for some sort of a text book on this subject to enlighten automotive engineers who, for the most part, seem utterly ignorant as to what goes on inside the engine jacket or of the simple fundamentals of thermodynamics.

Some of the most prominent engineers have assured me that the specific heat of air drops off so rapidly with increasing temperature that steam cooling can offer no advantages. Others have declared that the rate of heat transfer to air increase much faster than temperature increase and few know the difference between convection and radiation.

I hope you will follow up this good work with some good technical stuff.

S. W. RUSHMORE.

## Electrical Standards Win Approval

*Editor,* AUTOMOTIVE INDUSTRIES:

I have been much interested in Mr. Beecroft's description of the meeting of the Automotive Electric Association.

Everyone at this date knows that standardization is a very good thing both for the manufacturer and the consumer and I believe that, if not made too broad, standardization of both the starter and generator for motor cars will help quite materially.

The motor car manufacturer has had very little to say in the matter of the design of both starter and generator. He has been forced to take what was on the market.

There are at present a large number of different designs of generators on the market and it would be of very little service if we endeavored to make our standard so broad as to include all of them, for the value of standardization is greatest when the number of standards is the least.

There are several things which can be made standard for all generators: for instance, the minimum number of commutator segments, brush area per ampere, maximum temperature and minimum insulation resistance.

There is no question but that the future holds open the possibility of the use of disk type generators suitable for fan belt drive and also extremely small diameter generators that could be placed close to the engine crankcase and, while there is no great difficulty in designing these, the efficiency may have to be considerably reduced.

Standardization of direct connected starting motors should not be difficult and, as far as I can see, must be based on the stalling torque. I think that four sizes at most would be sufficient.

W. G. WALL,
National Motor Car & Vehicle Corp.

## Comment on Generator Standards

*Editor,* AUTOMOTIVE INDUSTRIES:

I have carefully gone over the proposed generator standard as set forth by the Automotive Electric Association. In this connection I wish to make the following comments:

A long series of tests were made by this company during the winter of 1921 to determine the generator output requirements of the small car, such as should be covered by the generator No. 1, referred to in the above mentioned report. The results of these tests show that the requirements of the small car cannot be handled by a generator with the characteristics specified. The reason for this is that the small car requires, in business usage, more battery output and has a lower generator r.p.m. per car mile of speed.

The actual current requirement of a large car does not exceed the small to any marked degree, and large cars are usually equipped with generators running at a high r.p.m. per car mile of speed. The result is evidently that the small car requires a better charging characteristic to maintain the battery in a charged condition.

Realizing this condition, a standard charging characteristic should be established that would maintain the battery under the minimum driving condition a manufacturer would desire to cover, and variation in generator r.p.m. per car mile of speed be used as a basis for standardizing generator.

Permissible temperature rises and brush life must be given careful consideration on this unit, as the actual field condition varies to such a marked degree and individual drivers cannot be depended upon to regulate the output to conform to their requirements.

The generator should be designed so that the driver who uses his car on an average of 20 miles per day at a rate of not to exceed 20 miles per hour, making five starts and burning his lights only when driving shall maintain his battery. The following characteristic is a suggestion of the average charging rate:

COLD GENERATOR, BATTERY—1275 DEG. —6-8 VOLTS

| | |
|---|---|
| 7 m.p.h..... | 0 amp. |
| 10 m.p.h..... | 4.25 amp. |
| 15 m.p.h..... | 11 amp. |
| 20 m.p.h..... | 15.25 amp. |
| 25 m.p.h..... | 18 amp. max. |

HOT GENERATOR, BATTERY —1275 DEG. —6-8 VOLTS

| | |
|---|---|
| 8 m.p.h..... | 0 amp. |
| 10 m.p.h..... | 1.5 amp. |
| 15 m.p.h..... | 7.5 amp. |
| 20 m.p.h..... | 11.75 amp. |
| 25 m.p.h..... | 14 amp. max. |

Overlapping on different standards should occur in order that the full requirements would be covered with the fewest possible number of different generators, and it is my opinion that the field could be fully covered with not to exceed four standards.

A. R. LEWELLIN,
Chevrolet Motor Co.

## Proposed Lamp Glass and Illumination Standards

AT a recent meeting of the Lighting Division of the Standards Committee of the Society of Automotive Engineers it was suggested that the present standard for lamp glasses, p. B6 of the S.A.E. Handbook, should be revised so as to make it more satisfactory for various devices used by lens manufacturers. A semi-circular notch was suggested, but not approved by the lamp manufacturers, as it would require redesigning the lamp doors and conflict with servicing the large number of lamps now in use. It was decided, however, to modify the form of the notch and a tentative recommendation was approved which will be tried out by the lamp manufacturers before it is finally approved by the Division.

A SECOND exhibit of agricultural machinery will be held in the Grand Palais on the Champs Elysées, Paris, in the latter part of January, the exact dates to be announced later, according to advices received by the Agricultural Implement Division of the Department of Commerce.

This exhibit will be under the auspices of the "Union Intersyndicale des Exposants de Machines et d'Outillage Agricoles," and will be confined strictly to articles used in agriculture, viticulture, horticulture and forestry. It is open to manufacturers of all countries.

Further details may be secured by communicating with the Commissariat General du Salon de la Machine Agricole, 8 Rue Jean Goujon, Paris.

# Automotive Dealer Classification Usually Inaccurate

**Present method of listing car dealers, garages and repair shops absurd. Functions are interrelated, not separate. Automotive retailers conduct variety of departmentalized activities.**

By Harry Tipper

THE question is often propounded "what constitutes a dealer in the automotive field?" The ordinary lists of the trade classify separately, car dealers, truck dealers, garages, repair shops, supply dealers, etc. This general method of classifying the trade list has led us to a belief, more or less indefinite, that retail establishments specialize in one or other of these functions mainly. This is not true; an examination of any trade list will show that the number under the separate classifications is at least three times the total, indicating that the average retail automotive establishment operates at least three separate branches.

This method of classification is much as though the department store were separately classified as a grocery store, a hardware store, a furniture shop and a dry goods store. The real picture does not get home very quickly because of our absurd adherence to these terms —garage, repair shop, car dealer and supply store.

Perhaps the picture of automotive shops in a town of nearly 10,000 in the East may illustrate the whole situation more correctly and more vividly. This town has no manufacturing, is a residential town where over 95 per cent of the people own their homes and the car population is large. Consequently, the number of establishments is above the average for the section. Six years ago there were three automotive establishments in this place. One was called a garage and did a good deal of storing. It had a very small supply department and a repair shop with hand power tools in the rear. We will call him dealer "A."

The second establishment was in a building owned by a successful plumber and run by the plumber in addition to his own business. Selling cars and performing adjustment service was the only part of the automotive work done at this place, which will be labeled "B."

Dealer "C" was a salesman for a well-known car.

THE head mechanic employed by dealer "A" left him one day and started a repair shop in the ground floor of a new building, becoming dealer "D." Five years ago he paid his first rent for the place. Four years ago he shut off about 10 ft. square for a combined office and supply department. Three years ago he bought out the other ground floor tenant, trebled his supply department, added a garage and put in some machinery for his repair shop. One year ago he added a car agency.

Meantime, the plumber whom we labeled dealer "B" sold his plumbing business and went into the automobile end heart and soul. He started with his car agency and some service. Later he added a supply department. To-day he has a repair department, a new car sales department, a used car department and a supply store.

The opposition plumber, equally successful, had a son of age and mechanical turn of mind. Father and son built a garage and repair shop for the boy to run—the biggest garage in the town. This became dealer establishment "E." Two years later this place opened up a supply department, began trading in used cars and eventually took up a car agency.

An old livery stable was offered for sale. A good mechanic came from another town near by and bought the place. He set up his repair shop. It remains a repair shop.

To-day there are in this town ten retail establishments in the automotive business. Three of them are over six years in business. Four of them are over three years and three of them have come into existence within the last three years.

THERE are in these establishments nine car agencies, nine repair departments, eight supply departments, eight garages, etc. The proprietors are two old bicycle men, five mechanics, three business or commercial men. All of them started with one department only.

How did they come to spread out? They are not men of more than ordinary intelligence—most of them have only limited business experience. None figure far ahead.

The pressure of the market suggested the changes. Dealer "D" did not put in the large supply store in the front of his shop from long study. No. He put it in because people wanted to buy supplies when they took the car away after having it repaired.

The whole tendency of growth in this town has obliged the retailer to assume a larger number of functions and departmentalize his business. People wanted to get service where they bought cars and vice versa. They wanted to do their automotive buying where and when they were thinking about it. So the retailer responded by giving them the opportunity to do so.

All over this country the same story is being repeated and all over the country the retailer is becoming an automotive retailer, not a garageman, repairman or car dealer exclusively. It is time we ceased to use the absurd classifications mentioned at the head of this article and began to think about the automotive retailer as a group, with departments and functions to perform which he must combine because of the demand of the user.

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## Tell Your Production Troubles

EVER since the recent S. A. E. Production Meeting we have been getting letters from production men telling about the benefits they got from the exchange of ideas that took place at that gathering. Practically all of them favor more sessions of a similar character, but in the meantime they don't want to go back to their individual factories and stay there without contact with other production managers.

They are already thinking specifically and constructively about possibilities for the next production meeting. One has suggested that the machine tool builders have a special semi-informal session with the factory production men, so that frank statements of troubles and possible remedies can be made and discussed.

Another factory manager writes as follows:

"I think it would be a mighty good plan if all those who were fortunate enough to attend the first production meeting would write to the officers of the S. A. E. the different troubles and different items of interest pertaining to their own work. These items could be kept on file, and at a later date the complaints which are the most common could be selected for special discussion at the next meeting."

Both these suggestions look good. To facilitate the exchange of ideas on this subject AUTOMOTIVE INDUSTRIES will be glad to throw open the columns of its forum. Future production meetings and production practice in general will make advances in proportion to the freedom with which principles and ideas along practical manufacturing lines are openly discussed.

## [Spontaneous Ignition of Hydrogen Jets]

CASES of destruction of dirigibles by fire and explosion have been rather frequent recently, and the results in some instances have been of the utmost gravity. The inflammability of the hydrogen with which the bags of these dirigibles are filled naturally involves great risks, but just how the gases became ignited has remained a mystery in some cases. Of course, where a crash to earth occurs, large quantities of the inflammable gas are released quickly, and there is a possibility of their coming in contact with almost red hot parts of the engine and thus being set off. However, the engines are generally shut off as soon as something goes wrong, and as they are, moreover, inclosed in their nacelles, the chances of fire being caused in this way are comparatively remote. Another possibility lies in the severing of current-carrying wires extending the length of the hull, and this is believed to have been the reason for the explosion of the navy dirigible that fell into the Humber.

There have been, however, some disasters that were incapable of explanation by either of these theories, and this led to the belief that the escape of hydrogen through openings in the gas bags might be capable of inducing electric potentials sufficient to create sparks that would ignite the gas. That phenomena of flow are sometimes accompanied by the generation of static charges is well known, and it has been proved, for instance, that gasoline passing through the pores of a chamois strainer generates sufficient potential to cause sparks in the atmosphere. The flow of hydrogen through nozzles has been investigated in Germany recently, with respect to any possible accompanying electric phenomena, and the results have been negative so far as concerns the explanation of hitherto unexplained disasters to dirigibles. For it was shown that with the dry hydrogen gas escaping through a nozzle there was no sign of electric potential in the jet, even when there was a high pressure behind the jet. It is true that sparks as long as 3 in. were obtained if water was discharged with the hydrogen, and similar effects were produced when steam and hydrogen were discharged together, but since the bags of dirigibles are filled with dry gas this does not bear on the case in point.

# Sane Stand on Legislation Needed

APPROXIMATELY 3000 bills relating in some way to motor vehicles will be introduced in the 43 State legislatures which will convene early in 1923. While there is likely to be little uniformity in the bills themselves, legislators generally are thinking along the same lines.

It can be taken for granted that in almost every State an effort will be made to reduce the accident hazard by tightening up regulations and restrictions. Many of the measures which will be proposed to attain this highly desirable end will contribute nothing to the sum total of safety, but a great many of them will be enacted.

Other subjects to be taken up, in addition to taxation and highways, will be the limitation of truck loads, weights and speeds as well as the highly important subject of the regulation of motor vehicles used as common carriers. There also will be the usual grist of bills relating to equipment, such as headlights.

In most cases the convening of the legislatures is less than two months away. It is none too early, therefore, for automotive interests to determine what stand will be taken on this prospective legislation. Uniformity of action and aim will be necessary if tangible results are to be obtained.

Not much can be accomplished at this time in seeking national legislation of a uniform nature. Each State will present a different problem. It may be possible to approach all of them on a somewhat uniform basis, fundamentally, but for practical purposes each State must be considered separately.

Each State has its own peculiar problems such as the need for revenue from motor vehicles, how this revenue shall be spent, the type of highway construction and the extent of its accident hazard.

When we speak of "uniformity of action" we mean for each particular State. There may be in that State a dozen organizations devoted to some automotive interest. They may have entirely divergent views concerning what attitude should be taken. An association of motorists and organization of motor truck operators may be as far apart as the poles in their views of certain proposed bills, but if they are unable to reach a compromise which will be reasonably fair to both, how can they expect legislators to pay much attention to them? There must be some common ground on which all automotive interests can stand in each State.

There certainly is one tenet to which every person interested in motor vehicles should subscribe, and that is fairness to the public. There is ample reason for legislators to determine to do every thing possible to cut down the number of street and highway accidents. Once this fact is admitted, it should be easy to proceed.

If the regulations proposed are sane and sound they should be approved. If they are not, they should not be opposed on general principles, but some sensible substitutes should be presented for the law-makers' consideration. Vituperation and loud lamentations because motor vehicles have been singled out for attack, will accomplish nothing.

Legislative programs which may be framed by automotive interests must be constructive and not destructive. In promoting these programs the work should be done out in the open. All the cards should be laid on the table and there should be no resort to lobbying in the usual meaning of the word.

The automotive industry, if it gets together on the platform on which its leaders stand, has nothing to fear from pitiless publicity. It is not asking special favors or special consideration. It asks nothing but fair play. It does not oppose reasonable and effective measures for promoting safety and when the laws are enacted it wants them enforced. It doesn't object to the payment of reasonable taxes. It will gladly pay for the maintenance of improved highways. It is opposed to the overloading and over-speeding of trucks.

If agreement can be reached in each State on these fundamentals, it should not be difficult to convince every fair minded legislator that the automotive industry honestly wants to help in the solution of pressing problems of taxation and regulation.

Widespread publicity should be given to the program agreed upon, if agreement is reached, and it is an honest program. This publicity should be educational in character. Every line of it should bear the stamp of truth and fair play. It should have none of the sinister earmarks of propaganda.

Honest educational work is not only legitimate but commendable. Propaganda, on the other hand, almost always has a selfish motive. The work of the National Automobile Chamber of Commerce and the Highway Education Board to promote highway safety, for example, is educational in the best sense.

These legislative programs, which should be worked out in advance, should be based upon the principle of the greatest good to the greatest number.

# Operations Keep Up to Level of October

## Body Shortage and Rail Situation Continue to Present Serious Problems

NEW YORK, Nov. 20.—The volume of production in automotive plants is remarkably close to the levels of October when operating schedules exceeded all records for that month. This is being done regardless of the fact that last month was occupied in part with catching up on production for September when coal shortage caused a curtailment of operations. Unless unforeseen difficulties arise it is probable that but for the inclusion of a holiday in a short month, November would not fall far short of the October mark of 244,000.

There is no diminution in the demand for cars. While metropolitan districts report a falling off in sales of open models the decline has been counterbalanced in those sections by a strong and consistent demand for closed types. Manufacturing schedules are centered around closed cars with a consequent heavy burden placed on body builders. Additional body plants are being rushed to completion but it is not likely that there will be any appreciable relief until after the first of the year.

**Body Relief Next Year**

The body shortage continues one of the big problems of the industry and it will remain so until the added manufacturing facilities are available or until there is a pronounced let-up in the demand for closed cars. Evidence is lacking of any perceptible stocking of open cars against spring demand. To the contrary, it is apparent that all cars produced, whether of the open or closed type, are reaching the hands of the consumer.

There is no improvement in the railroad situation which is hampering seriously the delivery of cars. Good weather conditions have lessened the difficulty of getting cars to dealers by means of driveaways and the industry will make general use of this means of transportation as long as the roads are passable. In the winter of 1920, the previous banner year in the history of the industry, a large percentage of cars were delivered by driveaways and since then road conditions have improved materially. More extensive efforts are being made this year to keep highways open and clear of snow. Regardless of this, however,

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# *Business in Brief*

**NEW YORK, Nov. 23—Greater firmness is noted in distribution, with a shift from primary to secondary lines. Industry has maintained a very fast pace for this time of the season. Retail buying has been good in many sections of the country due to the prevailing warm weather. Buying of holiday goods has increased.**

**There has been a slightly better supply of cars, but the shortage still prevails. Lumber shipments have improved as a result of better transportation facilities, but output is still curtailed in parts of the South and Pacific Coast due to car shortage.**

**Loadings for the week ending Nov. 4 were 19,653 cars less than for the preceding week, although greater than during the corresponding weeks of 1920 and 1921. The decrease was largely in merchandise. Total loadings aggregated 994,827 for the week.**

**The farmers are receiving better prices for grain and dairy products. Plentiful rain has helped the winter wheat crop, but has slowed down grain deliveries through making roads impassable.**

**Steel and pig iron production has been speeded up in spite of easing of the price of the latter. Open weather has stimulated building. Structural material and cement have boomed. Railroads continue to be large buyers of cars and locomotives.**

**The stock market suffered severe declines under aggressive bear pressure and levels as low as those which occurred in June were seen. A partial rally lifted many stocks in the latter part of the week. Bonds were firmer and showed activity. Call money eased off to 4 per cent. Bank clearings aggregated $7,252,668,000 for the week ending Nov. 16, a gain of 10.6 per cent over the previous week.**

# Thomart Stockholders Authorize Bond Issue

KENT, OHIO, Nov. 22—Stockholders of the Thomart Motor Co., which was organized during the period of inflation following the war, at a special meeting recently authorized a bond issue not to exceed $200,000. This is to be secured by a first mortgage on the plant, equipment and property of the company.

At present the company is selling about 20 trucks a month. In order to make a profit, however, the output must be increased to 50 trucks monthly, and to do this it will be necessary to increase the working capital.

# American-Bessemer Companies Combine

## Merger Probably Effective by January 1—Assets in Excess of $3,000,000

NEW YORK, Nov. 20—Awaiting only the formal approval of the stockholders to make it effective, the merger of the American Motors Corp. of Plainfield, N. J., and the Bessemer Motor Truck Co. of Grove City and Philadelphia is announced. No hitch in the negotiations is expected.

The consolidated company will be known as the Bessemer-American Motors Corp. with the Plainfield concern a dominant factor. It will have a capitalization of $2,000,000 of 8 per cent participating preferred stock and 200,000 shares of common stock, with assets in excess of $3,000,000, it is understood. It is hardly likely that the two parties concerned will be brought together until the first of the year. Until that time each will continue as before, with Ralph D. Mock as general manager of the Bessemer company.

The Bessemer Motor Truck Co. was established more than 10 years ago and makes a line of trucks ranging from one to four-tons. It has two plants located in Grove City and Philadelphia, and when the merger is completed, it is understood that operations will be centered at the Philadelphia plant.

The American Motors Corp. manufactures passenger cars and has been put on its feet in the last year through the efforts of President Carl H. Page, who has cleared away the financial difficulties of the concern since he took control.

Under the merger plan the consolidated company will have a complete line of trucks and passenger cars, handled by one selling organization.

# Grant Halts Car Making While It Builds Trucks

CLEVELAND, Nov. 20—The Grant Motor Car Co., which is being operated by Receiver Joseph C. Hostetler, is manufacturing trucks, for which there has been a good demand since the receivership. The company for the present is not making new passenger cars.

The parts and service departments are being operated, so that dealers are enabled to hold the good will established by the car. The work of taking an inventory and appraisal is progressing.

**FORD OCTOBER OUTPUT**

DETROIT, Nov. 20—Ford Motor Co.'s October production in its American plants totaled 121,765 cars and trucks, approximately 32,000 more than any previous October. September aggregated 89,000 and in the foreign plants October showed an increase over September in each place.

# G.M. Export Company Elects Mooney Head

## Succeeds J. Amory Haskell, Who Will Center Efforts on Parent Organization

NEW YORK, Nov. 20—James D. Mooney was elected a vice-president of the General Motors Corp. at the recent meeting of the board of directors of that organization, which is the parent company of the G. M. C. group. At the same time the directors of the General Motors Export Co., accepting the resignation of J. Amory Haskell, the company's president, elected Mooney to that position, promoting him from his previous duties as vice-president and general manager. Other elections by the export company directors named A. L. Haskell as vice-president and general manager and Austin S. Murray to be vice-president and treasurer.

**Executive Committee Additions**

Additions to the executive committee of the General Motors Corp. include Charles S. Mott, executive vice-president of the G. M. C. in Detroit, and Fred J. Fisher, president of the Fisher Body Corp. In addition to James D. Mooney, John L. Pratt, general manager of the accessory division of the General Motors Corp., was elected a vice-president of the G. M. C.

Mooney, who now takes a position as one of the executive heads of the General Motors group, has been vice-president and general manager of the export company since the first part of this year, prior to which he was general manager of the Remy Electric Co. He has effected a complete reorganization of the export company's policies, and under his direction a striking growth has been recorded in the international sales of the General Motors cars, trucks and other equipment. In his new capacity he will devote his efforts to further extension of these activities, having complete control of the overseas trade, and under his direction will be placed the affairs of General Motors, Ltd., the English subsidiary handling the distribution of G. M. C. products in the United Kingdom. In announcing this change the company's statement declares that "his promotion is a recognition of his success in developing the foreign trade of the corporation."

**Haskell Relinquishes Duties**

J. Amory Haskell, who has been president of the export company, also was a vice-president and member of the executive and finance committees of the parent company. He will relinquish his connection with the export division and devote his time to the immediate interests of the parent corporation. He has headed the export company since Feb. 13, 1918.

The new vice-president and general manager of the export company, A. L. Haskell, is best known as manager of the Pan American Division of the company. He joined the General Motors staff in 1918, with the Buick Motor Co. branch at Chicago. A year later he entered the export company and has filled the positions of assistant treasurer, manager of the New York branch and manager of Pan American division. In the absence of D. A. Laing he has been acting sales manager.

Austin S. Murray has been treasurer of the export company since 1920, and recently was elected a director of the company.

## *Racing Still Important in Stimulating Engineering Efforts as Well as Public Interest in Cars*

By Col. J. C. VINCENT

*Vice-President in Charge of Engineering of the Packard Motor Car Co.*

Detroit, Nov. 20.

**THE fixing of 122 cubic inches as the gross displacement for cars entering the 1923 Indianapolis sweepstakes indicates the progress that has been made in the past ten years toward increasing the efficiency and economy of gasoline motor-driven vehicles and offers a splendid opportunity for American car makers to demonstrate this in competition with the best of foreign built cars.**

**It is true that demonstrations and tests might be made in private, but such demonstrations lack the force and effectiveness that can be gained by competition in an international race. The army and navy engineers could test the effectiveness of new airplane designs and principles in private if they thought it advisable, but instead they chose to race their craft in great annual events upon which public interest may be centered and developed.**

**Racing in public serves to stimulate the best thought and effort of participants because there is so much interest aroused, and every possible precaution is taken to guard against mishaps upon which in private tests or exhibitions some chance might be taken. It may not be possible to guard against every eventuality which the new conditions of the race impose, but no matter what the results they will be invaluable from an engineering standpoint and will serve to stimulate to greater effort in the future.**

**There is a constant influence in the industry toward refinements making for greater power and lighter weight. Remarkable progress has been made in the past ten years and similar progress will be made in the future. As it is possible to lighten the weight of vehicles the engine dimensions may be reduced, and in this particular the running of the 1923 Indianapolis race will be a great continuing movement. The cars in this race will be proportionately lighter and smaller than in earlier year races and though designed for this particular purpose, their performance will be studied for the future design and development of standard passenger models.**

**Development of the American automobile would be benefited by manufacturers entering cars in the race as it would serve to concentrate effort upon getting the best possible cars representing America in the competition. We have entered with this thought uppermost in mind and will continue our efforts regardless of results this year until we have established the supremacy of American engineering. We will also be prepared to enter Packard cars in races abroad so that America may have a chance to demonstrate its cars in competition with the best the world affords.**

**I do not hold with the opinion that the automotive industry has outgrown the racing stage. I consider racing important to stimulate the best in engineering and am of the opinion that manufacturers should get back into racing, which is becoming too expensive for private individuals to maintain. The advancement of the art is such that races can no longer be won on flukes as in earlier years, but must go to the entrant most successful in design. Though the discontinuance of racing might seem to have little effect upon the actual sale of automobiles, it would leave the industry without one of the greatest interest-promoting points that it has had with the general public.**

### RYAN BANKRUPTCY ENDS

NEW YORK, Nov. 20—Allan A. Ryan, who was formerly in control of the Stutz company and who failed for $18,000,000 last July, has been discharged from bankruptcy by Justice A. N. Hand.

## Locomobile Rearranging Factory at Bridgeport

BRIDGEPORT, CONN., Nov. 22—Announcing that it is busier than it has been during the past two years, the Locomobile Co. of America, Inc., is to-day operating its plant here with 1000 skilled workmen, and is making a re-arrangement of its buildings and additions to them that indicates increased working personnel and production.

Additions are being rushed by contractors to units of the so-called Liberty Building, which will allow correlation of machine work in one huge shop building, for construction of both passenger automobiles and trucks. Through purchase of additional property the corporation has squared up its property holdings. The newly acquired space will be utilized for an addition to the machine building.

# 2 Goodyear Directors Join Stockholder Suit

## Attack Legality of Contract Entered Into with Leonard Kennedy Co. of New York

AKRON, Nov. 20—Francis Seiberling and R. L. Robinson of Akron, directors of the Goodyear Tire & Rubber Co. and party defendants to the four actions filed in the Akron Common Pleas Court by Mrs. Laura L. T. Weiss of Cleveland, a Goodyear stockholder, attacking the legality of the entire $85,000,000 refinancing and reorganization program of the Goodyear company, have filed answers to one of Mrs. Weiss's petitions in which they state they believe the allegations in her petition to be true.

The two Goodyear officials in their answers join in with the prayer of Mrs. Weiss in her charges against the new Goodyear management, and petition the court to grant stockholders of the company the relief which they say is due them.

**Contract at Issue**

The Seiberling and Robinson answers specifically concern the petition of Mrs. Weiss, attacking the legality of a contract entered into by the Goodyear Tire & Rubber Co. and the Leonard Kennedy Co. of New York. Under the terms of this contract, according to the clauses in Mrs. Weiss's petition, Goodyear pays the Kennedy company $250,000 a year plus 5 per cent of the company's annual profits in excess of $10,000,000, but not in excess of $20,000,000, for the services of E. G. Wilmer as president and the services of other Goodyear officers named by the financial control which succeeded the regime of F. A. Seiberling in the spring of 1921.

The two directors state that they were not members of the Goodyear directorate on May 12, 1921—the date upon which the Kennedy contract was negotiated—but were elected as such on March 27, 1922. They also state that until the filing of Mrs. Weiss's petition they had no knowledge of the terms and conditions of the Kennedy contract. Their joint answer also avers that since the service of summons upon them as defendants in the suit, they have carefully examined the contract and all of the circumstances connected with its execution.

**Cousin of F. A. Seiberling**

Francis Seiberling is a cousin of Frank A. Seiberling, founder of the Goodyear company, and now president of the Seiberling Rubber Co. Francis Seiberling, during the Seiberling régime of Goodyear, was one of the company's attorneys as a member of the law firm of Slabaugh, Young, Seiberling, Huber & Guinther.

Since the filing of their answer it is reported in Akron that through the influence of F. A. Seiberling, who still retains control of his common stock in the Goodyear company, both Francis Seiberling and Robinson were elected to the Goodyear directorate board for the explicit purpose of unearthing the Kennedy contract and of aiding in exposing its terms.

Interests back of Mrs. Weiss in her four actions against the new Goodyear management, were successful not only in unearthing the contract but in getting authentic photographic copies of it in its entirety, and these photographs are attached to Mrs. Weiss's petition.

Goodyear officials will not comment upon the answers filed by Seiberling and Robinson.

Attorneys in the case claim the Kennedy contract was entered into while F. A. Seiberling was still president and in control of the Goodyear company, without his consent or authorization, and that it was negotiated by a special delegate of the financial group handling the refinancing, who had been designated by these bankers as temporary secretary of the Goodyear company.

Seiberling did not step down and out and relinquish control of the company until May 13, and the contract is purported to have been signed by the Goodyear company through the temporary secretary representing the financial interests and new management on May 12 while Seiberling was still in control.

### *INDIVIDUALS AND NOT FORD LISTING STOCK*

**DETROIT, Nov. 17—Listing of the stock of Ford Motor Co. of Canada, Ltd., is not a company action, according to a statement from the factory, but the action of individual stockholders. The shares of the company have been listed officially upon the Detroit and Toronto stock exchanges for a number of years.**

**Quotations in New York, approximating 400, are not unusual, as the stock has been holding close to this figure and mounting as high as 440 at times on the local exchange. There is little trading in the stock, which is closely held, and few sales are in quantity exceeding ten shares.**

### TYER RUBBER CHOOSES OFFICERS

ANDOVER, MASS., Nov. 20—Myron H. Clark has been elected president of the Tyer Rubber Co., maker of Tyrian tires. He formerly was manager of footwear and miscellaneous factories of the United States Rubber Co. Walter E. Piper, formerly manager of the Boston Rubber Co., has been elected vice-president.

### PAUL B. VOSBURG DEAD

NIAGARA FALLS, N. Y., Nov. 20—Paul B. Vosburg, service manager of United States Light & Heat Corp. since September, 1919, died on Nov. 6.

# Durant Takes Steps Toward Body Making

## Hayes-Hunt Corp. Formed—Production Will Start at Elizabeth Plant

NEW YORK, Nov. 20—Incorporation of the Hayes-Hunt Corp. at Dover, Del., with authorization to issue 1,000,000 shares of capital stock without nominal or par value marks the debut of a Durant subsidiary which will build about 200,000 closed bodies a year for the big holding organization. It also means the construction of body building plants in connection with the six Durant and Star car building plants.

The principals in the Hayes-Hunt Corp. are J. Clarence Hayes of the Hayes-Ionia Co. of Grand Rapids, Mich., and J. H. Hunt, for a long time connected with Chevrolet interests in St. Louis. The new company, however, is entirely independent of the Grand Rapids organization. As yet no officers have been named, Mayles F. Bradley of Durant's executive staff serving as the temporary president.

Plans have been completed to begin operations first in Elizabeth, where space has been set aside in the plant formerly owned by the Willys Corp. and now part of the Durant interests. Three hundred men will be put to work and the force augmented as fast as possible. In all likelihood it will be necessary to build plants at Lansing and Oakland, and it is expected that all six body building factories in various parts of the country will be in full operation by March or April.

Work will be concentrated at first on the production of Star closed bodies. Later on, closed jobs for the Durant will be built. The Hayes-Hunt Corp. will not make open bodies. The bulk of this work for Durant will be done by the Mengel Body Co. of Louisville which will fabricate the material. The bodies will be assembled at the various Durant plants.

# Equipment Association Discusses Constitution

CHICAGO, Nov. 21—A business meeting of the Association of Automotive Equipment Manufacturers, attended by 135 members and prospective members, discussed the proposed constitution and bylaws drafted and approved by the board of directors. The constitution was taken up by sections and unlimited discussion was permitted.

A number of minor changes were suggested, and when it appeared that the work could not be completed at that meeting, it was voted to refer the instrument back to the committee of the board. At the association's regular meeting, to be held Nov. 27, final action will be taken.

Following the meeting 12 new applicants for membership were received.

# Hupp Sets Schedule of 40,000 for 1923

## One-Third of That Number, Distributors Told, Will Be Closed Cars

DETROIT, Nov. 21—Hupp Motor Car Corp. has set a schedule of 40,000 cars for 1923, approximately one-third of which will be closed cars. The schedule represents a one-third increase over the schedule for this year which was fixed originally at 30,000 but which will reach approximately 35,000. It is estimated that the export business in 1923 will reach 2500 cars, an increase of about 1000 over the 1500 total this year.

The company has just concluded its annual distributor convention, which was attended by 90 per cent of its wholesale organization. Contracts for cars for 1923 signed at the convention were in excess of the company's scheduled output. It was pointed out, however, that the schedule did not represent the company's manufacturing capacity, but was a conservative figure fixed after careful study of probable business conditions in the new year.

**Dealer Organization Increased**

General Sales Manager O. C. Hutchinson, at the convention, said that the company's dealer and sub-dealer organization had been increased from 900 to 1500 during the year and that a further increase would be made this year. The company will hold its usual dealer meetings at New York and Chicago during the national shows at each of which 500 dealers will be entertained.

Hutchinson urged the distributors to co-operate and assist dealers in meeting merchandising requirements. Particular attention should be paid to educating the retail salesmen, he said, as these men in the final analysis are the ones who eventually sold all the cars for the factory. Marketing methods should be studied and improved constantly, he advised, so the dealers may keep their establishments at high efficiency.

**Used Car Difficulty Explained**

The only reports the company has had of used car difficulty were from dealers who tried to do more business than their districts warranted, Hutchinson said. At the time the factory pointed out the fallacy of forcing business, he declared. Under its merchandising policy, Hupp was always in position to divert its product to districts in which there was assured demand, Hutchinson said, without loading dealers in territories temporarily caught up.

C. E. Salisbury, service manager, described the company's flat rate system which he said was now being used by practically all of its distributors. Within a short time all distributors and larger dealers will have the flat rate system in effect, he said, as experience has shown it to be most satisfactory both to the owner and to the operator of the large service shop.

Hupp business at present is running largely to closed cars, but it is reported that 50 per cent of the present business in open models is for the special sport models which were introduced last month. The demand for open models at this season has been largely increased by the special line. Next fall the company will be prepared to increase its output of closed cars over the one-third quota set for the early part of the year.

## *TRACTORS ARE NOT "MOTOR VEHICLES"*

**MILWAUKEE, Nov. 20—The question whether or not tractors are amenable to the State motor vehicle license laws of Wisconsin has been settled by an opinion of the Attorney General holding that no license need be taken out by the owner.**

**The opinion says that tractors are not "motor vehicles" within the meaning of the statute, and explains: "It should be noted that the State Department always has construed the law to exclude tractors from the class of motor-driven contrivances for the operation of which a license is required."**

# Studebaker Reached Its Year's Quota November 15

SOUTH BEND, IND., Nov. 21—On Nov. 15 the Studebaker Corp. reached the quota of 100,000 cars announced at the beginning of the year by President A. R. Erskine, thus completing the schedule in exactly ten and one-half months.

Studebaker plants continue to operate at capacity, demand for all models still being considerably in excess of production. Thousands of sales are reported to have been lost this year because production could not keep pace with demand.

Large additions to Studebaker plants are now being constructed, both in South Bend and Detroit, to take care of the planned production in 1923 of 150,000 cars.

# Receiver Is Appointed for London Motor Plow

SPRINGFIELD, OHIO, Nov. 20—On application of Edwin L. Shuey, Jr., a stockholder, John G. Cooley has been appointed receiver for the London Motor Plow Co. by Judge F. W. Geiger of the Court of Common Pleas. The assets of the company are placed at $39,665 and the liabilities at $37,086.

Shuey in his application stated that the company can meet its debts if it is not pushed by creditors. One suit has been filed against it and other creditors have been threatening to file actions. The company was incorporated July, 1921, with a capital stock of $150,000.

# Moon Distributors Order 15,625 Cars

## Fifty Per Cent More Than Company Ever Built in Year Wanted in 1923

ST. LOUIS, Nov. 22—At a meeting of all Moon distributors at the factory here orders were placed, with shipping instructions, for 15,625 cars in 1923, nearly 50 per cent more cars than the Moon company has ever produced in one year in its history.

In addition to contracting for this large number of cars the distributors agreed, under a co-operative warehousing and financing plan sponsored by the company, to take one-third of their total allotments during the three winter months and the remainder in equal monthly quotas, thus enabling the factory to maintain a steady rate of production throughout the year.

**Supply of Cars Short**

The distributors were agreed that last spring and summer they could have sold many more cars than they did if the cars had been available. They did not have large stocks on hand, however, and the factory, having dropped to low production during the winter, was unable to expand immediately to meet the demand. Officials of the company desired to maintain the whole factory personnel intact this winter and keep production at a fairly constant level. They appealed to the distributors to aid by stocking cars in warehouses this winter and the distributors responded to the full extent in meeting this appeal.

Assistant Treasurer Earl F. Nelson explained the financial co-operation in a short talk at a banquet during the meeting. He said distributors should use their credit at their banks and through the commercial automobile financing companies when possible.

**Banks Will Advance Loans**

The Moon company, he said, is prepared to deposit in the local bank of any distributor the amount of money necessary to finance his purchases, with the understanding that the bank will make loans as needed to the distributor over a period of three months.

The bank must take full responsibility for the credit risk and for releasing cars from the warehouse, but the Moon company agrees to take back within three months any new and unused cars upon which loans have been made and not repaid.

Having reached a peak production of 1018 cars in August the Moon company has reduced its schedule with the coming of winter, and its output this month will be about 650. Orders for materials, however, have been placed for delivery right away under the new arrangement and plans are being made to start Dec. 1 on a monthly production schedule of 1250 cars.

# Building Open Cars for Spring Demand

## Manufacturing Efforts, However, Center Chiefly Around Closed Types

DETROIT, Nov. 20—Stocking of dealers on a limited scale by manufacturers with strongly financed dealer organizations is getting under way against the early spring demand. Although there is a continued large demand in closed cars, the call for open models has fallen off extensively in most parts of the country, and factories maintaining major operations are doing so by building against next year's purchases.

The lightness in the stocking as compared with previous years may be traced directly to the increased demand for closed models, which is placing the industry more firmly on an all-season basis. Many persons, otherwise purchasers of open models in the spring, are buying closed models now, making immediate business possible where formerly an open model would have been carried over.

### Closed Cars 50 Per Cent of Output

Closed car business in almost every branch of the industry is now exceeding 50 per cent of total output. With manufacturers of better-priced cars it is running as high as 70 to 80 per cent. Manufacturers running on close to normal summer schedules are stocking dealers with open models, though a large number of open models are being sold at this season, due to the increasing popularity of special sport designs.

The closed car demand alone now has reached proportions adequate to carry most manufacturers through the winter on a satisfactory earning basis, but the outlook for spring is regarded as warranting continued manufacture of open cars in large quantity. Manufacturers whose dealers are not stocking are operating on immediate business alone on schedules ranging from one-half to two-thirds lower than summer business.

### Increase Dealer Representation

Companies are pushing vigorously their campaigns for increased dealer representation, and many important retail and distribution changes are being made every day. Restricted sales territories are being thrown open by many leading manufacturers, resulting in many dealers in less popular lines taking over sales of the more popular product, but in some cases this condition is inverted and sub-dealers of the big lines are switching to exclusive sales contracts with the smaller companies.

There is tremendous activity in the sales field, all through the industry, and every effort is being made to line up desirable dealers wherever they may be had. Almost all the big makers are increasing their manufacturing schedules for 1922, and this necessitates increased sales outlets. The building up of dealer organizations in cities continues strongly, and apparently the larger companies will develop this policy more extensively.

The traffic problems of factories will be aggravated from this time on by reason of the cessation of major boat operations on the great lakes, though some of the smaller lines will continue for some time longer. Freight cars have been scarce enough up to this time, but they will be scarcer than ever for a while. This fact alone will tend to hold stocking to a minimum, as long distance shipping facilities will be required largely for immediate business.

Deliveries of steel to the plants continue to be slow, and, in addition, much inferior steel is being received which cannot be used. This condition is adding a still further burden to the traffic and inspection departments, and is also causing much confusion as it is tying up freight cars for returning.

### *TRUCKS AND TRACTORS SELLING IN SOUTHEAST*

**ATLANTA, Nov. 21—Cotton at 25 cents per pound, the highest mark it has reached in forty years, outside of war times, has further stimulated the farm implement and tractor sales in the Southeast the past two months, according to the latest report of the Federal Reserve Bank of Atlanta.**

**September tractor sales continued well above those of a year ago the same month, while October experienced a further increase over the entire district. Indications promise steady sales volume in tractors and trucks for farm use all winter, according to reports of distributors in this section.**

# Durant Interests Start New Process Gear Plans

NEW YORK, Nov. 20—The incorporation of the Premier Gear Co. with Myles J. Bradley as temporary president has been recorded in Delaware. This is the first step taken in the reorganization of the New Process Gear Co. of Syracuse by the Durant interests which now are in control.

Within a short time it is likely the Premier title will be abandoned for that of the New Process Gear Co., at which time Durant is expected to announce his plans of operation so far as the gear manufacturing unit of his organization is concerned.

### STANDARD METAL SOLD

THOMPSONVILLE, CONN., Nov. 22—The Standard Metal Work Corp. here has been sold to the Premier Manufacturing Co. of Sandy Hook, N. J., which also absorbs the W. & B. Douglas Co. of Middletown, making a $1,500,000 combine. The Standard makes automobile accessories and parts.

# Car Building Plans Press Parts Makers

## Number of Orders Received by Them Indicates Sustained Operations

MILWAUKEE, Nov. 20—Inasmuch as the condition of an industry is fairly well demonstrated by the movement of shipping directions, it is interesting to note that manufacturers of automotive parts and equipment continue to be favored with delivery orders on contracts far beyond their most hopeful expectations based on the situation at the middle of November in former years. It is evident that passenger car manufacturers intend to sustain their winter production at a higher rate than past averages. At this time specialists in Ford materials and equipment in this center are being pressed probably harder than in any other month this year, obviously because of the increased output recently put into effect at Detroit.

### Shortage of Soft Coal

The fuel situation has become so settled that it is no longer a major topic of comment. The supply of soft coal is short, however, and economy is being practiced by all users. Mild weather so far this season has been of material help in conserving the small supply. Electric power users of central station current are practicing economy, but only by suggestion rather than demand, and it does not appear that it will become necessary to curtail the supply. Nevertheless steam generating plants have no over-supply of coal, while hydro-electric plants are encountering the condition of a smaller water flow than usual, due to the extreme drouth during the late summer and early fall.

The freight car shortage remains a serious problem to local manufacturers, especially in getting automotive materials to Eastern points. Motor truck delivery is in general use, both on short and long hauls, although there are certain limitations which make this recourse not entirely equal to requirements. No improvement in railroad transit conditions is looked for, as winter operating handicaps soon will be superimposed on the more or less unnatural obstacles now existing.

### Farm Machinery Gains

Comfort is found in the reports from manufacturers of agricultural machinery. For instance, the large Van Brunt works of John Deere at Horicon, Wis., resumed production Nov. 15 on a 60 per cent schedule effective until May 1. For 20 to 24 months deliveries from this plant have not averaged more than one-third of normal. It is stated that a cleaning up of dealers' stocks and an increased replacement need among farmers are making the resumption possible.

The freight car shortage is making

(*Continued on page* 1054)

# Tire Makers Promise Dealers Co-operation

## Retailers at Convention Take Steps to Strengthen Own Organization

MILWAUKEE, Nov. 17—"We tire dealers must work in harmony with the manufacturers in order to achieve the best results possible for dealer, maker and consumer" was the keynote of this year's convention of the National Tire Dealers Association, as enunciated in an address by the new president, George J. Burger of New York.

Discussions during the various sessions developed clearly that the dealers recognize that, if the tire business is to be purged of evils and nuisances, the dealer must first put his house in order, and then he may expect and be assured of the utmost co-operation of the manufacturer.

Representatives of virtually every representative tire manufacturing concern in the country were present by invitation, and a most friendly attitude and a helpful tone pervaded every expression made by them on the floor of the convention.

**To Build Up Strong Body**

While it was discovered to be the main idea of some members in the past to attempt to work upon the manufacturing interests rather than among themselves to eradicate acknowledged evils, at this convention the thought was dominant that it is essential that a strong, powerful body of dealers committed to ethical practices be built up, and to such an organization the assistance of the manufacturing group was gladly promised.

Standards of qualifications for eligibility to membership are being formulated, and it is believed that within a relatively short time dealers will be seeking membership in the association instead of requiring strong urging and persuasion to join. Like all new organizations, the tire dealers, since their association was formed a year ago, have battled an uphill fight to make the general body of dealers recognize the importance of belonging to the association and making themselves a part of its work.

**Qualifications for Membership**

At present the qualifications, which will be effective until Jan. 1, are that an applicant for membership must be a bona-fide dealer in tires, whose principal business is the merchandising of tires, and whose practices and policies subscribe to the generally accepted principles of legitimate, fair and honorable dealing. The dues of $6 per annum will be increased to $15, and as soon as the new secretary is able to put under way a membership campaign, the standards of eligibility will be strengthened.

Briefly, the aims of the association as enunciated at the Milwaukee convention are:

1. The sale of blemished and seconds to bona fide dealers instead of "gyps" and brokers
2. The discontinuance of basing equipment accounts on five instead of four tires.
3. The absorption of the war tax.
4. The reducing of direct sales to national and commercial accounts.
5. The enactment of ordinances, already accomplished in 25 cities, prohibiting spurious advertising and misrepresentation.
6. Increased margin of profit to the dealer.
7. Abolition of mileage adjustments.
8. Mutilation of all tires returned for adjustment.

That an advance of 5 to 10 per cent in the price of tires is to be looked for was the statement made by a number of dealers on the floor, although no direct intimation of increased tire prices was given by representatives of manufacturers in public expressions.

Frank Zeman was re-elected vice-president of the association.

## *ELECTRIC TAXICABS APPEAR IN NEW YORK*

**NEW YORK, Nov. 20—A new type of taxicab went into service in New York when the Electrotaxi Corp. placed a fleet of electric cars in operation last week. These are the first electric taxicabs that New York has had since the old electric hansoms of more than 20 years ago. Finished in two tones of gray the new cabs are in sharp contrast with the prevailing color schemes of public vehicles.**

**It is the intention of the Electrotaxi Corp. to work the cabs in double shifts, keeping them on the streets from 18 to 20 hours a day. Two sets of batteries are to be used and the battery compartments are specially designed for rapid changing, so that an exhausted battery may be removed and a fresh one substituted in less than 10 minutes. By thus changing the battery, the cars will have an operating radius of approximately 120 miles, and a maximum speed of 25 m.p.h.**

# Midwest Rubber Discusses New British Restriction

ST. LOUIS, Nov. 18—One of the largest meetings this year of the Midwest Rubber Manufacturers' Association was held this week at the Missouri Athletic Association. The regular monthly meetings of the association are held in Chicago, but this meeting came here at the request of a committee of St. Louis members. A luncheon was held at which the principal speaker was Charles M. Hay, a St. Louis lawyer.

There was extensive discussion of the new British regulations designed to stabilize the production of crude rubber by the imposition of graduated export taxes. The opinion was generally expressed that the new regulations will tend to stabilize rubber prices at a level somewhat higher than the present price.

# Equipment Men Join in Educational Work

## Service "Associates" Formed in Chicago as Development of Informal Body

CHICAGO, Nov. 18—The Service Equipment Associates, an organization to promote education on the proper understanding and use of equipment in automotive maintenance establishments, was formed at the Congress Hotel last night. G. W. Brogan of the Black & Decker Manufacturing Co., presided.

The organization had its beginning last May when a group of equipment manufacturers agreed upon a plan of pooled advertising of the promotional or educational sort. This advertising was planned to promote improved equipment and has centered about the slogan "The well equipped shop gets the business." This advertising was first placed in *Motor Age* and *Motor World* and later extended to other publications.

There was no formal organization back of this plan but a several months' trial had convinced most of the participants that it was worth while. On Nov. 10 a meeting was held when a more formal organization was discussed and a committee named to draft the plan. This plan was placed before the members of the groups and some invited guests last night. Short talks were made by William Webster, commissioner of the Automotive Equipment Association, and Ray W. Sherman, merchandising head.

**New Members of Committee.**

Three members of an executive commission were elected as follows: For three years, G. W. Brogan; for two years, S. V. Wood, Mid-West Manufacturing Co.; for one year, Charles F. Hodgson, Weaver Manufacturing Co.

Four meetings will be held each year, two of which will be on the occasion of the Automotive Equipment Association meetings. All are to be of the round table order and promotion of the use of better and more complete equipment is to be the only objective. The member firms are:

T. R. Almond Manufacturing Co., American Bureau of Engineering, Black & Decker Manufacturing Co., Burton Rogers Co., Continental Auto Parts Co., Greenfield Tap & Die Corp., Jacobs Manufacturing Co., Marley Manufacturing Co., Micro Machine Co., Mid-West Manufacturing Co., Frank Mossberg Co., Oxweld Acetylene Co., Weaver Manufacturing Co., Joseph Weidenhoff, Wright Manufacturing Co., Bonney Forge & Tool Works, Stevens & Co. and Kellogg Manufacturing Co.

### DAVIS HEADS DOSS RUBBER

ATLANTA, Nov. 21—At a recent meeting of the stockholders of the Doss Rubber & Tube Co., T. J. Davis was elected president and general manager, the change effective at once. Warren M. Sutton was named vice-president.

# Postpone Operation of Mexican Tariff

## More Time Is Granted Dealers in Which to Import American Made Cars Free

MEXICO CITY, MEXICO, Nov. 18—Foreign automobile manufacturers and dealers will have an opportunity to continue their shipments into Mexico unrestricted until the latter part of December and possibly until Jan. 15. The Treasury Department has issued an official order suspending temporarily the decree which placed an ad valorem duty of 10 per cent on all automobiles imported to Mexico. This decree went into effect early in October.

It is stated that a considerable number of automobiles were imported while it was in effect but under the new order of the Treasury Department these collections will be refunded to those who paid them.

The order was issued in response to a protest of the automobile dealers of Mexico City and other towns of the country who set forth in their plea for lifting of the duty that it worked a severe financial hardship upon them inasmuch as they were not given time before the decree went into effect to replenish their depleted stocks of automobiles, and that many sales had been made at prices based on the importation of the cars free of duty.

It is stated that the suspension of the duty will continue until the outstanding orders for automobiles have been filled, which will be the latter part of December or the early part of January.

# North Carolina Showing Gains, Campbell Reports

DETROIT, Nov. 21—Commenting on business conditions in the south Atlantic district, Colin Campbell, general sales manager of the Chevrolet Motor Co., declared North Carolina to be showing remarkable gains in an industrial sense, so much so that hydro electric companies in that district have announced that they are unable to make additional contracts for power.

Bankers in that district advised him on a recent trip that bank deposits in that State have reached a higher mark than ever before. Many cotton factories are working two shifts, he said, and the demand for help is taxing the district. Under the influence of higher prices for cotton, the last of the crop of two years ago is being rushed to market and there is little possibility of further storing by growers.

The highway construction program of the State is also furnishing a large amount of employment and in addition is creating an increased demand for automobiles. Sales of low priced cars in that territory have shown remarkable increases in recent months, he said, and the outlook for large business in 1923 is especially bright. Better prices for grain and oats in the middle Atlantic States is also strengthening the car demand in those districts, he declared.

## *ANTI-THEFT SECTION OF MOTOR LAW UPSET*

**DIXON, ILL., Nov. 22—Illinois motor vehicle law sections which make it a felony to have possession of an automobile, the engine numbers of which have been changed, is unconstitutional, according to Circuit Judge Harry Edwards of Lee County. He quashed counts in an indictment against V. J. O'Gorek on this ground.**

# May Add Six-Cylinder Car To Present Templar Line

CLEVELAND, Nov. 20—The Templar Motor Co. in all probability will place a six-cylinder car on the market, continuing at the same time the four-cylinder model.

The price will be such that both cars will come into the market under much better conditions from the price standpoint. This feature is being planned with the idea of much larger production and greater sales of cars.

T. L. Hausman, receiver of the company, states that reorganization plans were being worked out and that some time in January a statement of details probably will be made public.

In the meantime, Hausman, who is in active charge of the plant operations, is making new cars and shipping them daily. All dealers are being supplied with parts, and the court protection that was secured has enabled him to obtain sufficient working capital and thereby overcome what had been a serious handicap.

Business has exceeded expectations of the receiver, who has obtained several new contracts since he took hold of the plant.

### FLINT EXPECTED NEXT MONTH

NEW YORK, Nov. 20—Durant Motors expects to have the first of the new Flint cars out by the first week in December. There has been a slight delay in the original program, caused by a few changes in engine proportions. The Flint engine will be made by Continental, but will be built along lines laid down by Durant and Continental engineers.

### 3368 MILES ON 40 GALLONS

LOS ANGELES, Nov. 20—Seeking a gasoline mileage record instead of a speed mark, Cannonball Baker, riding a Neracar motorcycle, has completed a trip from New York to this city, 3368 miles, reporting a consumption of 40 gallons of gasoline and five gallons of oil. His running time was 179 hours, 28 minutes, or an average of 20 m.p.h.

# Schwab Tells Dealers Basis for Optimism

## Country in Better Shape Than Year Ago—Sees Greater Improvement in 1923

INDIANAPOLIS, Nov. 22—Charles M. Schwab, president of the Bethlehem Steel Co. and now a moving factor in the reorganized Stutz Motor Car Co., told Stutz distributors and dealers, assembled here for a one day conference, his reasons for believing that the automotive industry as well as all business interests of the country should share in his confidence of good times ahead and continued prosperity and increased trade during the coming year.

### Says Outlook Is Very Good

In stating his reasons for his optimism he said:

After a little recession due to conditions abroad and to the recent election and the uncertainty due to future legislative action, I find the outlook is very good. I believe I can point out sound grounds for my optimism. The whole country needs material in every line and in great quantities. The railroads will need much steel. The farmers will get good prices for their crops, and so will the cotton growers, for the world needs more cotton than it has needed for several years. In fact the world is short of every fundamental and will continue so. That means prosperity.

Continued and steady growth for general business and for the making and selling of automobiles can confidently be expected for next year. At present unsettled world conditions and the upsets of the recent election have disturbed the outlook, especially in certain quarters. These things are temporary. They will soon pass.

The marketing of farm crops at good prices and the continued growth of general lines will discount the disturbing elements of the immediate present. By the first of the year we can confidently look for materially bettered general conditions and a steady growth and expansion from month to month from then on. I do not look for a boom. I sincerely hope there will be none. But steady growth and progress I do look forward to.

### People Still Want Cars

"The people seem to want more and more cars," Schwab said, with a broad smile, when asked if he thought general business and industrial conditions warranted the assumption that the country could continue to absorb motor cars next year at the 1922 rate of production. "With the probable growth and expansion and progress of general trade next year it would be quite unreasonable to expect the motor industry and trade to lag. All fundamental conditions point to steady growth and progress. All conditions are better than they were a year ago. The motor industry made records this year. There seems no sound reason to expect anything but a growth and steady rise after the first of the year."

Fifty Stutz distributing agencies were represented at the conference and dinner.

# Men of the Industry and What They Are Doing

### Elwood Haynes Returns Home

Elwood Haynes, president of the Haynes Automobile Co., has returned home on the President Arthur after a European trip. He reports considerable feeling in England over the American tariff law, which, he believes, will have a depressing effect on industrial activity throughout the British Isles.

### Executives Plan Arctic Trip

Plans are being made for a hunting trip to the Arctic Circle next spring in a flying boat which will follow the Hudson River and the Canadian lakes and rivers to James Bay and then to Hudson's Bay. There a camp will be pitched, and the sportsmen will go after polar bears and walrus. Booked for the trip are Howard E. Coffin, president of the National Aeronautic Association; W. E. Metzger, vice-president of the Columbia Motors Co.; Harold H. Emmons, president of the Detroit Chamber of Commerce; Police Commissioner James W. Inches of Detroit; I. M. Uppercu, president of the Cadillac Motor Car Co. of New York, and Charles F. Redden, president of the Aeromarine Airways. It will take three days to make the trip, it is estimated.

### Peed Made Overland Sales Head

L. G. Peed, has been appointed sales manager of the Willys-Overland Co., succeeding A. C. Barber, who goes to Chicago to become president of the Overland Motor Co., the Overland branch in that city, a position formerly held by W. H. Taylor. It is understood that Taylor contemplates moving to California. Peed has been assistant sales manager for Overland for about a year, going to the position from Toledo, where he was branch manager. Previous to that he was retail sales manager of the New York branch.

### O. L. Smith Resigns

O. L. Smith, chief inspector and efficiency engineer for the Velie Motors Corp., Moline, Ill., has resigned after 13 years' service with the corporation. He will join the Lowden Machinery Co. forces in Fairfield, Iowa.

### Hudson Advances Draper

J. S. Draper has been appointed assistant sales manager of Hudson Motor Car Co., his appointment being part of the change in the sales department by which Harry G. Moock becomes sales manager and H. B. Phipps, export manager. Draper was formerly identified with the company as district manager.

### Rosenbach Manages D & B Sales

David Rosenbach has resigned as director of sales of the Farran-Kinney Co. of Chicago to become manager of sales for Dalton & Balch of Chicago, manufacturer of D & B silent timing gears. Rosenbach has been in the automotive equipment field for over 20 years, having been secretary of the Automotive Equipment Association and sales manager for the Rayfield carbureter.

### Anklan Heads Hall Lamp

William F. Anklan, who recently was advanced to the presidency of the Hall Lamp Co., with works at Kenosha, Wis., and Detroit, began his career with the company as a bookkeeper in the office of the Kenosha plant 20 years ago, when the industry was known as the Badger Brass Manufacturing Co. When the Hall company was formed as a consolidation, Anklan was transferred to the general offices in Detroit and made secretary and treasurer afterward. For several years he was chief assistant to J. F. Hartz, whom he now succeeds as president. Hartz has been elected chairman of the board.

### McCann Arrives in London

W. G. McCann, export manager for the Hendee Manufacturing Co., which makes the Indian line of motorcycles at Springfield, Mass., has arrived in London to attend the Olympia Motorcycle Show, to be held in the English metropolis, from Nov. 25 to Dec. 4. McCann will remain in Europe for at least three months, visiting various points on the Continent following the London show, where his company will have a large exhibit.

### Whitehair With G. M. Truck

Harry S. Whitehair has joined the national sales division of the General Motors Truck Co., making the third member of the sales force in this division. Whitehair will have general charge of all territory outside of New York and Chicago, where the company already has headquarters in the national division.

### Harroun Joins Marvel Carbureter

Ray Harroun, who for several years has been prominent as an automotive engineer, has joined the organization of the Marvel Carbureter Co., Flint, with combined responsibilities in executive engineering and sales.

### Heringhaus Joins Fisher Body

Alphonse G. Heringhaus of LaFayette Motors Corp. has resigned to become associated with the Fisher Body Corp. He will travel out of the Detroit office.

### Bethlehem Appoints Beary

M. Herbert Beary has been appointed special factory representative of the new Bethlehem Motors Corp. He will make his headquarters in Kansas City, Mo.

### Metzger-Hurlburt Motor Co. Formed

Metzger-Hurlburt Motor Co. has been formed in Detroit by William E. Metzger and William B. Hurlburt to handle the Columbia in that city. Both Metzger and Hurlburt have been prominent in the industry for many years, a large part of the time being associated with each other. Metzger has been identified with many companies both in the manufacturing and sales ends. Besides being one of the founders of Cadillac, he was the "M" of the E-M-F combination and has been a vice-president of the Columbia Motor Car Co. for several years. Hurlburt after being associated with Metzger in the early days of the industry, served as a distributor in eastern cities of several cars and later organized the Hurlburt Motor Truck Co. of New York. Since leaving the truck company he has been with Metzger in the Wills Sainte Claire distributorship.

### Graves Succeeds Barnes

William H. Graves, assistant chief metallurgist of the Packard Motor Car Co., has been appointed chief metallurgist to succeed C. E. Barnes resigned. R. R. Robinson has been appointed assistant manager of purchasing.

## Belgium Proposes Higher Duty on Cars and Parts

WASHINGTON, Nov. 22—Increased duties on automobiles and parts are proposed in a draft of the new Belgian tariff which will be submitted to Parliament at an early date, according to a cablegram received from Commercial Attaché Cross at Brussels. The proposed duty on automobiles and parts is 160 francs per 100 kilos to be increased by a coefficient of 4.

Automobiles weighing up to 4000 kilos have been dutiable heretofore at 20 per cent of the c.i.f. value in port of entry, while those weighing over 4000 kilos and all parts of automobiles have been assessed at the rate of 12 per cent ad valorem.

## New York Court Upholds Taxicab Bonding Statute

NEW YORK, Nov. 20—The Appellate Division of the Supreme Court has upheld the validity of the State law requiring the bonding of taxicabs in cities of the first class. This decision was made in the test case of Charles Martin, who failed to comply with the law, which calls for a bond of $2,500 for each taxicab to guarantee compensation if a passenger is injured.

Justice Dowling, who wrote the decision, held that the validity of the statute was not affected by the expense, however heavy, that must be borne by the owner of a taxicab.

# Seeks to Halt Plan of Wagner Electric

## Stockholder Gets Restraining Order in Connection with Reorganization

ST. LOUIS, MO., Nov. 18—A temporary restraining order, returnable Dec. 8, was granted to-day in a suit for a receiver and an injunction to prevent the reorganization of the Wagner Electric Manufacturing Co., a Missouri corporation, into a corporation under the laws of Delaware. The suit was filed by representatives of the estates of Richard C. Kerens, John J. Raleigh and Jane M. Leahy, who own about 1600 shares, or 2.7 per cent of the stock of the Missouri corporation, against the corporation and its officers and directors.

The plaintiffs allege that the reorganization, if consummated and allowed to stand, would make their stock valueless, and they seek to oust the present management of the company, recover its assets and have the management vested in a receiver and stockholders of the Missouri corporation.

### Layman Denies Charges

W. A. Layman, president of the old and the new corporation, said the reorganization had already been effected and that the new corporation had been functioning since Aug. 11. He added that the change was duly ratified by 93 per cent of the stockholders of the Missouri corporation at a meeting Aug. 4 and that the interest of no stockholder was prejudiced.

The plaintiffs ask that the officers and directors be restrained from holding a meeting of stockholders Dec. 29, called for the purpose of voting on a plan to reduce the capital stock. Accusations of misconduct in office are made against the officers and directors of the corporation and their removal is requested so that they can be replaced by stockholders interested in continuing the Missouri corporation.

### Assets of $11,851,606

The Missouri corporation had outstanding 15,000 shares of one kind of stock of a par value of $100 a share. At the beginning of this year, it had assets of $11,851,606 and debts of $4,219,923. It had been in financial straits, but since last March the business has been showing a profit. At one time, Dec., 1920, the company owed $7,139,238. The company manufactures single and polyphase motors, transformers and automobile starting and ignition apparatus.

The petition alleges that early in 1920 the directors of the company anticipated a deflation in the value of inventory and proposed to market $3,500,000 of preferred stock through a New York broker at a discount of 7 per cent. This deal fell through, as did a subsequent arrangement to finance the company through G. H. Walker & Co., St. Louis brokers.

In 1921, the petition sets forth, certain St. Louis and New York banks and trust companies that had loaned money to the company placed representatives in the directorate. From that time, it is alleged, the inventory was reduced; money derived from the sale of products was paid on the debts to the banks, and the business was operated at a loss.

### Says Stockholders Lost

When the business began to show a profit, in March, 1922, the petition says, the banks and trust companies thereupon demanded payment of their loans, and since then the directors and representatives of the banks have conspired to transfer the assets of the company to the Delaware corporation. The charge is made that the Missouri corporation received no compensation for the assets thus transferred, and that the reorganization was made for the benefit of the obligations to the banks and trust companies, and at a loss to the stockholders.

## *SEES BLOW TO TRADE FROM CAR ACCIDENTS*

**PITTSBURGH, Nov. 21—Members of the Pennsylvania Automotive Trade Association were warned last night by Benjamin G. Eynon, state registrar, that "While the effects of accidents on sales is negligible now, the time will come when the accumulative force of abuse will deal a crashing blow to the industry."**

**He said the time will come when the average citizen will demand legislation forbidding the building of engines above a certain speed and restricting fast traveling.**

**He predicted over 760,000 cars and 66,000 trucks will be registered in Pennsylvania this year, and probably 900,000 cars and 80,000 trucks next year.**

# Operations Keeping Up to Level of Last Month

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the industry cannot help but feel the effects of rail congestion and the lack of available transportation facilities.

A more wholesome tone is being given to the truck branch of the industry, with both heavy and light duty vehicles feeling an impetus in sales.

Excellent conditions prevail in the export field with no reason for qualifying the general impression that this will be the best year in the matter of shipments.

Business with part makers continues good with collections showing no decline from last month.

# $10,000,000 Plant in South Is Report

## Automotive Interests Are Said to Have Bought Site in West Virginia

PITTSBURGH, Nov. 21—Orders received by Pihl & Miller, Inc., of Pittsburgh, construction engineers, for a great quantity of constructional steel lend strength to the rumor that a large automobile plant will be built at Ridgeway, a township near Martinsburg, W. Va. The Pittsburgh firm admits receipt of the order for material for such a factory in that town, but declines to mention names.

It also has developed that the interests back of the deal have bought 3000 acres of land at an average price of $200, upon which the plant will be constructed.

According to the rumors, the plant is to cost $10,000,000. No stock has been offered for sale, and efforts to find out who is back of the project have failed. It is said, however, that financial interests of Pittsburgh and Detroit are fathering the project. It is known that one of those approached is Harvey S. Firestone, but he is reported to have refused to be a participant.

About the only available information regarding the project is the report that it is a four-cylinder car that will be built to compete with a popular model of the same size already on the market and to sell at a lower price.

As far as can be gathered, the project contemplated is something similar to the Marysville venture of Wills Sainte Claire in that it is expected to build a city of 16,000 homes at Ridgeway.

### Detroit Knows Nothing

DETROIT, Nov. 20—No one here will admit any knowledge of the $10,000,000 company at Ridgeway, W. Va. Harold H. Emmons, president of the Board of Commerce, declares he knows nothing of it and, further, never has heard of William Jordan, who is said to represent Detroit in the West Virginia deal.

# Road Matters Considered at Michigan Conference

GRAND RAPIDS, MICH., Nov. 21—A joint session of the north central division of the National Highway Traffic Association and the Michigan State Good Roads Association was held here to-night, the speakers, including David C. Fenner of Mack Trucks, Inc.; Roy D. Chapin, president of the Hudson Motor Car Co.; Arthur H. Blanchard, president of the National Highway Traffic Association, and George H. Pride, treasurer of the National Highway Traffic Association, and David Beecroft, vice-president of the North Atlantic division of the National Highway Traffic Association and directing editor of The Class Journal Co.

# Timken Axle Selects Glover as President

## Succeeds A. R. Demory Who Leaves Company Because of His Ill Health

DETROIT, Nov. 22—Fred Glover, vice-president and general manager of the Timken-Detroit Axle Co., has been elected to the presidency, following the resignation of A. R. Demory. The resignation is effective Dec. 2 at which time Glover will assume the presidency and H. W. Alden will succeed to the position of chairman of the board. No other changes in the organization are contemplated. Both of these positions were left open by Demory's retirement.

Ill health is given as the reason for Demory's resignation. It is his intention to spend the next year or more in travel and rest. To this end he has severed his connection with the Timken company entirely, his stock having been sold during the last few months.

Glover became associated with Timken in July, 1919, coming from Washington, where he had been identified with the motor transport service. Previous to that he acted as vice-president and general manager of the Gas Truck Co. of Minneapolis. When this company sold its holdings to the Emerson Brantingham Co. He became vice-president of the new company.

Alden has been with Timken for 17 years and has been associated in the motor car field since 1895. Since the organization of the Timken Detroit Axle Co. in 1909 he has been in complete charge of design and engineering.

Executives of the Timken company express complete confidence in the future of the automotive industry. Increased volume of business in both truck and passenger car field in 1923 is indicated by contracts already filed. It is expected that the volume of business in the new year will aggregate $24,000,000.

# Rickenbacker Acquires Old Detroit Shell Plant

DETROIT, Nov. 21—The Rickenbacker Motor Co. has taken over the former plant of the Detroit Shell Co. where shells and ammunition were made during the war. The building adjoins the Rickenbacker property. In it are 20 concrete and steel abutments, with a solid base 20 feet in the ground and rising from the floor level to four feet in height, which must be removed before the company can use the building, necessitating a delay in occupancy of at least two months.

The plant will be connected with the present Rickenbacker factory by a 60-foot archway, giving the organization approximately 500,000 sq. ft. of floor space. The new addition will house a continuation of the assembly line and will be the finishing end of the production line.

Other building activity at the Rickenbacker factory, which soon starts its second year of production, include an addition to the office building, an enlarged experimental department, the installation of a complete factory service station for Rickenbacker tourists and the construction of an executives' garage.

## *SUPREME COURT ACTS IN TAX ON GASOLINE*

**WASHINGTON, Nov. 20—Motorists in the State of Arkansas cannot be forced to pay a gasoline tax pending the final adjudication of the constitutionality of the question as to whether or not a State can levy a tax of one cent a gallon on gasoline and kerosene.**

**The Supreme Court to-day granted an injunction on the application of the Pierce Oil Corp. to continue in force a temporary injunction secured in the Federal Courts against the enforcement by the State of a State tax of one cent a gallon on gasoline consumed in motor vehicles.**

**The constitutionality of the question is now before the Supreme Court and pending final decision, it was held that the temporary injunction in Arkansas must stand.**

# Would Use More Diplomacy in Taking Care of Traffic

NEW YORK, Nov. 20—As illustrating the difference between brute force and diplomacy in handling traffic and showing how modern methods of efficiency are working out, Alden L. McMurtry, until recently consulting engineer of the Connecticut State Motor Vehicle Commission, told members of the Metropolitan section of the Society of Automotive Engineers at their meeting here that one traffic officer can stop and warn 50 motorists of violations of regulations in the time it would take him to make one arrest and carry the case through the courts.

While McMurtry in his paper on "Regulations Governing the Use of Rural Highways" devoted most of his time to explaining the workings of the Connecticut law, the way the commission handled its records and the system of law enforcement in the State, the discussion that followed threw many interesting sidelights on the situation.

The small-town constable idea must go, declared McMurtry, who believes the success of traffic regulation should be measured by the results attained in reducing the number of accidents and not by the number of arrests made.

### NEW AUBURN "SIX"

AUBURN, IND., Nov. 20—Confirmation of the rumor that the Auburn Automobile Co. will bring out a smaller and lower priced six-cylinder model is made by President A. P. Kemp.

# Earl Motors Elects Scobie as New Head

## Formerly Vice-President and Treasurer—Financial Interests Approve Choice

JACKSON, MICH., Nov. 21—George C. Scobie, vice-president and treasurer of Earl Motors, Inc., under the Earl régime, has been elected president to succeed Clarence A. Earl, resigned. Scobie is a Jackson man, having served successfully with Hayes Wheel Co. as auditor, controller, secretary and director, continuing in the latter capacity after joining Earl.

Before becoming identified with the Hayes company, he was a member of the accounting staff of Price, Waterhouse & Co. and has a long financial and business experience. He became active in the Earl company together with other Jackson men early in the year, when the company experienced financial difficulties. His place as head of the company has created general satisfaction in Jackson, where the residents have a large financial interest in the company.

Several important changes will be made in plant departments, but Scobie has deferred announcement on these pending thorough consideration of the needs of the company. Though the company has made progress during the year, as attested by its improved position at the national shows, it is planned by the new executive to bring it much more to the forefront. In this connection it is also noted that the company has enjoyed a very high export business during the year, which it plans to enlarge.

With Scobie as president, the company is reported to be in position to secure ample financing at all times, as he enjoys a large measure of confidence of the interests backing the company.

# Disturbances Delay Cable Report of Argentine Show

NEW YORK, Nov. 22—The annual automobile exposition at Buenos Aires, Argentina, under the direction of the Automovil Club Argentino, opened on Nov. 9 and was concluded on Nov. 19. Plans had been made to publish in this issue of AUTOMOTIVE INDUSTRIES a résumé of the show results, to be cabled to New York by the editorial correspondent of this publication and *El Automovil Americano* in the Argentine capital. Due, however, to the interruption of the service of the All-America cables by the recent earthquakes and tidal wave in Chile, this editorial message was not forthcoming.

Efforts to obtain the desired information via the Western Union lines, which follow the east coast to South America and pass through the Bahama Islands, landing at Miami, Fla., have been unavailing thus far.

# Caution Emphasized in Parts Symposium

## Replies Made to M. A. M. A. Questionnaire Predict Sound Credit Conditions

NEW YORK, Nov. 20—"What in your opinion is the automotive outlook for 1923 with respect to finance and credit?" is the question asked of some of the leaders in the industry by M. L. Heminway, general manager of the Motor and Accessory Manufacturers Association, in a questionnaire sent out. Replies received predict sound credit conditions and keen competition.

Heminway's correspondents in this symposium unite in declaring for unremitting vigilance in granting credit and show optimism tempered by caution as well as displaying a forward-looking faith in the dynamic progress of the automotive industry.

### Sees Encouraging Outlook

Representing the vehicle manufacturers, A. R. Erskine, president of the Studebaker Corp. said:

> The outlook for 1923 in respect to credit, finance and sales is most encouraging. I believe the volume next year will equal if not exceed this year.

According to Alfred Reeves, general manager of the National Automobile Chamber of Commerce, a few of the car manufacturers may have some difficulty, but on the whole the credit and financial outlook is good. He points out that arrangements are being made with 22,000 bankers throughout the country to get credit for dealers, particularly in the carrying of floor stocks, while more and more finance companies are entering the field to handle the retail sales.

According to many representative parts manufacturers, 1923 will be the final test of financial strength for small automobile manufacturers.

A leading carbureter manufacturer says:

### Improvement Looked For

> It is our opinion that the finances of the better companies will improve during the first six to nine months of the year 1923, and on the other hand we will not be surprised if some of the companies who are not well financed find it necessary to drop out. Whether they will discontinue doing business or will be absorbed by some of the larger companies we cannot say, but we assume that there are so many cars on the market to-day that the manufacture of some of them could be discontinued without having a bad effect on the industry.

Similar views are expressed by many other unit manufacturers and suppliers of raw material who are in close touch with the basic conditions in the industry, but they all agree that this does not represent a pessimistic outlook for the trade as a whole. Furthermore, it is pointed out that many small concerns, with a sound product and a strong clientele, are not necessarily weak because they happen to be small. Some small concerns are in better shape financially than several of their larger competitors. In the main, though, the outstanding vehicle manufacturers in the principal price divisions are making sharp inroads on the business of the smaller manufacturers through economies in production and distribution.

One of the largest parts manufacturing concerns in the country has this to say:

> Finance and credit will be on easier footing than in 1922 due to the remarkable performance of the industry. It will carry into the year of 1923 the conviction to bankers and financiers that the automobile industry is on a sounder and more popular basis than ever before.

Car makers who do not give excellent value for the money will have a difficult time, say many executives. In general, 1923 will be a year calling for vigilant work on the part of credit managers. A representative Detroit parts manufacturer sums up the situation thus:

> There is a feeling among financial men that the next few years are going to bring very strong competition among automobile companies, and therefore the financial men will have to be very careful in giving credit, for, while some will make large profits, many will fall by the wayside. This condition will not change until business has really cleared itself of practically all weak concerns and is in the hands of a few strong companies.

"Most of the weak sisters have already been eliminated," says a Cleveland accessory manufacturer, "and the few remaining ones will be either refinanced on a sound basis or eliminated from the field by the force of competition, thus leaving the industry as a whole in better shape," or, as another manufacturer expresses it, "those car manufacturers now in good financial condition will show a steady improvement and those not at the top will probably fall back."

# Car Building Plans Press Parts Makers

(*Continued from page* 1048)

Milwaukee one of the leading shipping centers for North and Western distribution by Michigan manufacturers especially. Great Lakes transit lines are carrying a relatively enormous number of passenger cars from Detroit, Flint, Lansing and even Toledo. Crosby Line steamers have been carrying between 60 and 75 new cars to Milwaukee every day from Muskegon, Mich., to which point the cars are driven from factories for cross-lake transit, to be driven from Milwaukee to Wisconsin, Minnesota, Iowa, Dakota and even Montana.

The Pere Marquette Line, which does not ordinarily call at the Muskegon port, has been bringing several boatloads each week since late in October. As an accommodation to Buick, two shipments of 40 cars each were brought from Muskegon to Milwaukee last week by the Pere Marquette.

The Crosby Line is planning to put on another steamer for the Muskegon-Milwaukee run.

# Engineers Discuss Automotive Railcar

## A. S. M. E. Section Takes Up Question Following Paper Read by Herbert Chase

NEW HAVEN, CONN., Nov. 20—Discussion of the paper by Herbert Chase entitled "Some Trends and Recent Developments in Automotive Vehicles" presented before the local section of the American Society of Mechanical Engineers here this evening hinged largely upon the subject of railcar development, the principal speaker being W. L. Bean, mechanical assistant to the president of the N. Y., N. H. & H. R. R. Co.

Bean criticised the six-wheel railcar made by simply modifying existing truck chassis, and stated that he believes the use of these vehicles will be confined chiefly to use on short lines where traffic is exceedingly light. Cars of considerably larger capacity, but still using light automotive construction are needed by the New Haven road and would see wide use elsewhere, said Bean, and he is doing much to encourage this type of construction.

### Favors Eight-Wheel Type

He favors an eight-wheel type of car having a capacity of 60 or more passengers and a fair sized baggage room.

Bean said further that some form of separate air compressor is needed, both for whistle and brake operation. The engine must be designed for railcar characteristics. A six-cylinder engine developing fully 120 hp. appears to be required and means for operating the car from either end are quite necessary. Railcars used by the New Haven road have been much improved by increasing the gear ratio to give 43 instead of 29 m.p.h. at the same governed engine speed.

### Little Depreciation of Cars

It was originally expected that the depreciation of the New Haven railcars would be such as to require that they be written off in three years, but the durability has proven so good that a five-year basis is now employed. Roller bearings first used on leading trucks proved to be too small. Larger roller bearings have stood up well and are favored over plain bearings. Automotive steam units for railcars are not favored because the labor used is not familiar with the automatic devices required.

It was learned after the meeting that the General Electric and Westinghouse Companies are interested in building lighter gas-electric railcars and that the New Haven road is giving their proposals serious consideration. The New Haven road is now installing an R & V Knight six-cylinder engine in one of its railcars for experimental comparison with present four-cylinder poppet valve engines of slightly less displacement.

# Truck Builders Meet with Parts Makers

## Efforts Will Be Directed Toward Boosting Specialized Unit Vehicles

DETROIT, Nov. 22—Plans for the welding together of unit parts makers and manufacturers of specialized unit motor vehicles into a compact organization for the promotion of this type of vehicle in the present expanding truck market were discussed at a meeting of the National Association of Motor Truck Industries this week, at which there were also present representatives of leading companies making up both elements of this branch of the industry.

Out of the meeting comes a plan whereby the former name of the organization will be shortened to Motor Truck Industries, and its management placed in the hands of a group of officers headed by Martin L. Pulcher, president of the Federal Motor Truck Co., and a board of directors composed of nine truck makers and six representatives of parts makers.

**To Harmonize All Efforts**

The fundamental principle of the association is to promote the merchandising of specialized trucks by harmonizing all efforts to this end. Directors and officers will consider at once the advisability of selecting a merchandising manager and a plan of selling patterned somewhat along the lines of the Automotive Equipment Association.

Efforts will be made to bring into the association all reputable makers of specialized unit trucks, so that united action may be taken on all problems confronting makers in this particular field. Consideration of the extent to which makers should go in the financing of dealers will be one of the first important matters taken up, and a plan in which the association may participate as a group may be developed if determined necessary.

**Tone of Truck Market Better**

The confinement of automobile buying to fewer lines and the consequent smaller margin for dealers in these favored lines, together with the general improvement in the tone of the truck market, was considered as creating opportunities for truck makers to wean good car dealers over to the truck end of selling and thus overcome the shortage of responsible dealers under which the truck industry as a whole has been laboring.

There was a pronounced feeling on the part of all companies present to vest absolute confidence in the ability of Pulcher to organize an association which would bring desired results. As a mark of this, the parts makers present voted to throw themselves open to any suggestion for the general betterment of conditions which he or his committee might suggest, and declared themselves ready to do their utmost to eliminate any cause of misunderstanding in the past.

By association it was pointed out that truck makers may act unitedly in prompting efficiency in truck sales, and that tendencies to bid against each other for dealers may be overcome by elevating the general standard of dealers so that all may have good ones. Monthly meetings, at which sales experts in all fields would be heard, and from these the association could garner sales information which, in turn, would be passed out to dealers in the form of regularly issued sales promotion organizations.

**Discuss Contract Handling**

There was some frank discussion on the handling of contracts and commitments during the recent inventory liquidating period, in which the positions of both truck makers and unit makers were shown and out of it came the apparent feeling that these difficulties had been handled to the best possible advantage of everyone, and that misunderstandings could have been avoided had there existed a joint association.

Those participating in the discussions were Fred Glover, new president of Timken-Detroit Axle Co.; George W. Yeoman, Continental Motors Corp.; G. E. Wilder, Gemmer Manufacturing Co.; C. A. Dana, Spicer Manufacturing Co.; A. E. Parsons, Brown-Lipe Gear Co.; L. M. Viles, Buda Co.; C. C. Hinkley, Hinkley Motors, Inc.; W. L. Horning, Waukesha Motor Co.; David Beecroft, the Class Journal Co.; A. V. Comings, Chilton Co.; J. W. Stephenson, Indiana Motor Truck Co.; H. T. Bouldin, Selden Truck Corp., and J. F. Bowman, Garford Motor Truck Co.

# 238,514 Cars and Trucks Produced During October

WASHINGTON, Nov. 23—Figures received by Department of Commerce through the Bureau of the Census place the total production of passenger cars in October at 217,098, compared with 187,128 in September, while truck production amounted to 21,416 as against 188,656 in September. In October, 1921, production totaled 134,734 passenger cars and 12,813 trucks. Total output of cars and trucks in October was 238,514.

The following table gives the total production for each of the last four months, with corresponding figures for the same months of last year. With a few exceptions, the reports each month are from identifical firms and include approximately 90 passenger car and 80 truck manufacturers. October figures are subject to slight revision when all reports have been received.

| | Passenger cars | |
|---|---|---|
| | 1922 | 1921 |
| July ..... | 224,057 | 165,574 |
| August ..... | 249,225 | 167,705 |
| September .. | 187,128 | 144,669 |
| October ..... | 217,098 | 134,734 |
| | Trucks | |
| July ..... | 21,357 | 10,766 |
| August ..... | 24,200 | 13,080 |
| September .. | 18,656 | 13,648 |
| October ..... | 21,416 | 12,813 |

# Packard Votes Stock Dividend on Common

## Fourth Apportionment in Nine Years—Shares Outstanding, $11,885,100

DETROIT, Nov. 21—Packard Motor Car Co. will pay a 100 per cent stock dividend on Dec. 16 to holders of common stock, directors at a meeting yesterday determining that a portion of the accumulated surplus should be permanently invested in the business to care for needs created by its rapid expansion.

This will make the fourth apportionment of new common stock by the company in nine years, the previous distributions being 40 per cent, October, 1913; 10 per cent, February, 1916, and 50 per cent, August, 1916. The authorized common stock was increased from $13,000,000 to $30,000,000 in 1919, at which time the par value was reduced from $100 to $10 a share. Common stock to the value of $11,885,100 was outstanding on Aug. 31 this year. When the new dividend is paid the outstanding will be approximately doubled.

**Stock Outstanding**

In addition to the outstanding common, the company has outstanding $14,789,800 of its authorized $20,000,000 of 7 per cent cumulative preferred stock and about $7,400,500 of 8 per cent gold bonds due April 15, 1931, and dated April 15, 1921, these forming the residue of an authorized issue of $10,000,000. The balance sheet as of Aug. 31, 1922, shows accumulated surplus of $17,004,438. There would be a surplus of about $5,119,338 remaining after meeting the transfer to capital account.

President Alvan Macauley computed the book value of common stock to be $24.31 on the basis of the company's showing in the last annual report. Stock on the local market was offered at $20.25 Monday with $20.12½ bid.

# Wire Wheel Will Enter Market with Disk Type

BUFFALO, Nov. 20—Announcement is made that the Wire Wheel Corp. of America will produce and market a new steel disk wheels, which will be called the Buffalo. This step has been taken after the situation had been thoroughly canvassed and General Manager O. J. Rohde convinced of the public demand for a disk wheel. Years have been spent in developing the wheel, and the company has had the co-operation of factory engineers and production managers.

The mechanical features will not be announced until the national shows, when the new wheel will make its debut.

The Wire Wheel Corp. of America, one of the pioneers in its field, has heretofore confined its manufacturing efforts to wire wheels alone.

# Atlantic City Plans $4,000,000 Speedway

## Expect Work Will Be Completed in Time for Proposed Meet on July 4

ATLANTIC CITY, Nov. 20—Automobile racing will be one of the attractions of this resort next summer, plans having been completed for the construction of a 1½-mile board speedway by the International Speedway Association.

Concrete grandstands capable of holding 150,000 people will be built at an estimated cost of $2,700,000; another half million will be spent on the track, while it is expected that the cost to fill in 400 acres of meadow land which has been selected as the site of the track will be $160,000. The location chosen is between the Pennsylvania Railroad and the Absecon Boulevard, about 1½ miles from the boardwalk.

Work will start Jan 1, and it is hoped to complete it in time for a proposed meet, the date of which has been set for July 4, and which has the sanction of the American Automobile Association.

### Prince Designs Speedway

John S. Prince, builder of many automobile board speedways in this country, is the designer of the proposed speedway. In this one, however, he has deviated from his usual practice in that he plans an inner track, one-quarter mile in circumference, which will be used for motorcycle racing and athletic events. In addition, it is planned to utilize the infield for baseball, horse shows, etc.

The International Speedway Co. is incorporated for $6,000,000, of which it is expected $4,000,000 will be used in building the plant. At present more than half a million has been subscribed, it is said, and the rest, it is stated, is in sight. C. H. Berlekamp of Cleveland, who is well known in the tire manufacturing field, is president of the company, and Prince is vice-president. The general manager is E. F. Corcoran, while among the directors are Harry Holloway, superintendent of the Brier Hill Steel Co. of Youngstown, Ohio, and Herbert S. Fray of the James Connolly Construction Co. of Cleveland and formerly with the International Harvester Co.

### NEW STEVENS HEATING PLANT

SPRINGFIELD, MASS., Nov. 21—The receivers for Stevens-Duryea, Inc., have obtained permission from the creditors to install a new heating system in the plant at Chicopee Falls and also to relocate a spur track leading to the plant. These changes will increase the efficiency of the plant, but no marked increase of production is contemplated at present.

### NEW JERSEY ROADS DINNER

NEWARK, Nov. 18—The New Jersey Good Roads Association, which has become a permanent organization composed of leading automotive and other business men of the State since the approval of the $40,000,000 highway building program by the voters on election day by a majority of more than 16,000, will hold its first annual dinner at the Robert Treat Hotel here on Dec. 5.

Among the speakers will be Alfred Reeves, general manager of the National Automobile Chamber of Commerce, Senator Edge and Governor-elect Silzer.

## FINANCIAL NOTES

**Gilliam Manufacturing Co.**, Canton, Ohio, at a recent directors' meeting declared the regular semi-annual dividend of 3½ per cent on preferred stock. Checks are now being mailed to stockholders. Officials of the company report volume of business more than trebled since Jan. 1 of this year, making further building expansion necessary. Much new equipment has been installed during this year, and an additional assembly room 40 x 90 feet is now being equipped and will be completed soon. Three new carbonizing furnaces have just been completed. Engineers are now working on plans for a new building which will cover the entire property recently purchased from the Kohler Baking Co.

**Stewart-Warner Speedometer Corp.** has declared an extra distribution of $1 a share on the common stock, thus bringing the year's payments up to $5 a share. Next year, there is every reason to believe the stock will be on a $5 basis. The company, it is said, now has more than enough cash to pay such dividend and has no indebtedness outside of current bills. Sales up to Nov. 15 more than equaled those for the entire year of 1921 and net profits for the first nine months of this year totaled $3,514,078, or the equivalent of $7.32 a share.

**Lee Rubber & Tire Co.**, reports show net earnings for nine months ended Sept. 30 of $278,351, after reserves for taxes and contingencies. Net sales for the nine months were $5,167,253. After payments of dividends for the first three quarters the surplus was $414,388. Unit sales of tires showed an increase over the same period of last year of 15 per cent and unit sales of tubes an increase of 40 per cent.

**Republic Motor Truck Co.** receiver has issued a statement showing the company's financial condition as of Sept. 28. The assets, excluding good will, shop rights, etc., are fixed by the appraisers at $6,289,929. Liabilities to all classes of creditors of record total $5,181,861.

**Milwaukee Motor Products, Inc.**, Milwaukee, manufacturer of the "Milwaukee" timer for the Ford and other cars, has increased its capital stock to $350,000 to handle the increasing volume of business and provide for contemplated extensions of production capacity.

**Chicago Motor Bus Co.** has applied to the Illinois Commerce Commission for permission to issue $3,750,000 worth of stock to finance the extension of the company.

### CARLISLE PLANT CLOSED

STAMFORD, CONN., Nov. 22—A shutdown of the Stamford plant of the Carlisle Tire Corp. was announced today, due, the company says, to a general slump in business this winter.

## BANK CREDITS

*Written exclusively for* AUTOMOTIVE INDUSTRIES *by the Guaranty Trust Co., second largest bank in America.*

Last week the rate for call money ranged from 3½ per cent to 5 per cent, as compared with 5 per cent to 6 per cent in the preceding week. An easier tone was also noticeable in the time money market. The rate for all maturities from 60 days to 6 months was 5 per cent, as compared with a range of from 5 per cent to 5¼ per cent the preceding week. The prime commercial rate continued to be quoted at 4½ per cent to 4¾ per cent.

Although freight loadings in the week ended Nov. 4 failed by 19,653 cars to measure up to the total of the preceding week, the decline was of a seasonal character.

Based on the amount of coal loaded at the mines, the estimated coal production in the week ended Nov. 11 was 12,600,000 tons, of which about 10,700,000 was bituminous coal and 1,900,000 anthracite. Production is continuing at a rate which allows the addition of a considerable amount to the reserves after taking care of current domestic requirements.

Although the November crop estimates for cotton and cereals, with the exception of corn, remain essentially the same as for October, changes in prices make a change in the value of the crops. The combined cotton, wheat, corn, oats and barley crops were valued on Nov. 1 at $4,727,000,000, as compared with a valuation of $4,144,000,000 on Oct. 1, and of $3,225,000,000 for last year's crop on Nov. 1, 1921. This is an increase of 14 per cent over October and of 46 per cent over Nov. 1 of last year, and it will be an important factor in increasing the purchasing power of the farmer.

The Federal Reserve statement as of Nov. 15, 1922, showed decreases of $6,907,000 in gold reserves, and $6,522,000 in total reserves. Total bills on hand increased $14,631,000.

# Chicago Bus Permitted to Extend Its Service

CHICAGO, Nov. 22—Permission to operate motor buses over south side boulevards here has been granted by the Illinois Commerce Commission to the reorganized Chicago Motor Bus Co. of which the president is John A. Ritchie, formerly head of the Fifth Avenue Coach Co. of New York.

The application of the Depot Motor Bus Co. for a similar permit was denied. The new service must be inaugurated within six months, according to the terms of the permit. Officials of the company state, however, that service will be started in a shorter time and that from 40 to 50 buses will be put in service at the start. The buses are to be manufactured in Chicago by a new corporation headed by Ritchie and operated as a subsidiary of the Yellow Cab Manufacturing Co.

## INDUSTRIAL NOTES

**American Bosch Magneto Co.** reports unfilled orders in excess of $9,000,000, of which the magneto division is credited with $6,200,000 and the starting and lighting system lines the remainder. This compares with $8,000,000 forward business a year ago this time. Shipments of magnetos during 1922 will exceed average shipments of the years 1914 to 1918 inclusive, the company reports. In 1919 and 1920 shipments were more than 100 per cent greater than anything previously accomplished.

**Aluminum Specialty Co.** of Manitowoc, Wis., has broken ground for a shop addition estimated to cost $65,000 with complete equipment. It will be three stories, 40 x 140 ft., and will be ready about Feb. 15 or March 1. Demands upon the company from the automotive and other industries all year have been in excess of capacity, and extensions have been undertaken now that ample assurance has been received that the new facilities will be utilized without waste when completed.

**Fairbanks, Morse & Co.**, Chicago, is transferring the pump department of the Eclipse works in Beloit, Wis., to the branch factory at Three Rivers, Mich., in order to provide more adequate space for the internal combustion engine plant, which by spring will occupy practically all of the Eclipse works. The Beloit plant is one of the largest of its kind in the world and during the past two years has undergone material enlargement.

**Rote Leather Co.**, recently incorporated for $1,000,000 under the laws of Delaware, has purchased the plant of the Doyle Rubber Co. at Akron. It will install machinery immediately and have the plant in operation by the first of the year, according to President B. W. Rote of Cleveland. J. W. Hildebrand is secretary of the company. The company will manufacture imitation leather for automobile tops.

**Hendee Manufacturing Co.** in October completed the third month's business since its 1923 models were announced. The total number of domestic sales for the three months was considerably more than double the amount of business done in the first three months of the 1922 selling season. Actual domestic sales for October, 1921, were more than treble domestic sales for October, 1922.

**J. B. Greenway** of Roanoke, Va., long associated with the tire manufacturing industry, is planning the establishment at Columbia, Tenn., within the next few months of a factory for the manufacture of tires, according to advices received from the Chamber of Commerce of Columbia.

**Harley-Davidson Motor Co.**, Milwaukee, manufacturer of motorcycles, bicycles, air-cooled engines, etc., is about to start work on another factory addition, 80 x 125 ft., now that it is completing work on an additional story on one of the main factory buildings.

**Philips Automobile Body Corp.** at Ravenna, Ohio, which is taking over the incomplete plant of the McElrath Tire & Rubber Co. plans to remodel and complete the plant before spring. The new company it is said is ready to expend $100,000 on the work.

**Hodes Zink Manufacturing Co.** of Freemont, Ohio, manufacturer of automobile fabric accessories is installing 50 new machines in its factory. When these are in operation 50 more women will be employed making a total working force of 275.

**B. L. Schmidt Co.**, Davenport, Iowa, manufacturer of the micro machine, has changed its name to the Micro Machine Co., in order to link the name of the company with the name of the product. The company has moved into a new factory building.

**St. Louis Spring Co.**, manufacturer of automobile springs, will build a large and modern manufacturing plant, on property recently acquired in St. Louis. The company plans to occupy the new quarters by Jan. 1.

**Willys - Overland Co.'s** former plant at Elyria, Ohio will soon be engaged in the manufacture of actuating farm gates, J. S. Green of Indianapolis having purchased the building for that purpose.

**Schott Brothers** of Ashland, Ohio, has bought the Willys-Overland clubhouse at Elyria and will convert it into a buffing wheel factory.

## Rolls-Royce Announces Prices on Body Models

SPRINGFIELD, MASS., Nov. 20—Rolls-Royce of America announces prices on its 12 body models, showing a range of from $10,900 to $13,500 as follows:

| | Number of Passengers | Price |
|---|---|---|
| Roadster | 2-3 | $10,900 |
| Phaeton | 4-5 | 10,900 |
| Phaeton | 6-7 | 10,950 |
| Enclosed drive cabriolet | 5 | 12,800 |
| Limousine | 6-7 | 12,850 |
| Sedan | 4-5 | 13,150 |
| Sedan | 7 | 12,900 |
| Enclosed Drive limousine | 6-7 | 12,900 |
| Town brougham | 6-7 | 12,850 |
| Suburban limousine | 7 | 12,900 |
| Salamanca cabriolet | 4-5 | 12,950 |
| Full cabriolet | 6-7 | 13,500 |

### BERGOUGNAN INCREASES PRICES

NEW YORK, Nov. 21—The Bergougnan Rubber Corp. of Trenton, N. J., has increased the price of its cord and fabric tires and tubes 12½ per cent, effective at once. The change in price is partly caused by the increased cost of production, due to the rise in the price of rubber and fabric. The Trenton plant is now working at full capacity.

### FORD BODIES CUT IN PRICE

ST. LOUIS, Nov. 22—A reduction of $51 in the price of bodies for Ford cars has been made by the Coupe De Luxe Body Co. The coupe body, which is four passenger, has sold for $350 since it was introduced several months ago. The new price is now $299, f.o.b. factory.

### FIRST STAR FROM ELIZABETH

NEW YORK, Nov. 20—The first of the Star cars to be manufactured at the Elizabeth plant came through on schedule last Thursday. While production will be at the rate of 25 a day for the time being, it is expected that by June 1 the Elizabeth plant will be turning out 500 Stars and 150 Durant fours a day. Elizabeth is the fifth Durant plant to start Star production, and the output is in excess of 200 a day in all these factories.

# State Officials Tell Their Views on Taxes

## Also Discuss Car Thefts, Sentiment Favoring Title Law As Solution

FRANKFORT, KY., Nov. 18—One of the outstanding features of the meeting of the National Association of Secretaries of State held here yesterday was the attitude toward more equitable systems of taxation for motor car owners in various States.

The conferees devoted considerable time to discussion of automobile thefts, sentiment favoring a title law in each State as the best solution of the problem. M. O. Eldridge, executive chairman of the American Automobile Association, told the State officials that more than $2,500,000 represented the value of stolen cars recovered since the enactment of the Dyer Act in 1919.

Frank Wenzel, chairman of the State Audit Bureau at Albany, N. Y., demonstrated a device against thefts consisting of a coil around the steering wheel in which certain key numbers covering the numbers of engine and chassis were stamped.

### Motorists Willing to Pay Share

Eldridge pointed out the need of dividing State finances into two groups. He said:

> There is a tendency in some States to place the entire cost of building and maintaining trunk line highways on the automobiles, which is manifestly unfair and impractical. Motorists, as a rule, are willing to pay their just share of road taxes, but the American Automobile Association believes that the capital outlay for the building of new roads should be obtained from bond issues amortized over a period of years from general taxation, and that the maintenance expenses should be paid from current revenues obtained either partially or wholly from the users of the highways.

Officials from New Jersey supported Eldridge in his contention and discussed the advantages of this division in their State.

Eldridge told the conference that motorists generally opposed gasoline taxes, especially in view of high taxes levied on automobile owners by States and municipalities. He expressed the opinion that the gasoline tax would be the fairest form of levy in event the impost was in lieu of excessive taxes.

The age limit for drivers of motor vehicles was discussed freely. While no resolutions relating to the automobile industry were passed the conferees favored licenses for drivers in every State with 16 years as a minimum age.

Louis L. Emerson, Secretary of State for Illinois, was re-elected president of the organization.

It was decided to make an effort to assemble all organizations dealing with State problems in one conference to be held at Asheville, N. C., next June.

# Calendar

### SHOWS

Dec. 3-9—New York, Eighteenth Annual Automobile Salon, Commodore Hotel.

Jan. 6-13—New York, National Automobile Show, Grand Central Palace, under auspices of National Automobile Chamber of Commerce.

Jan. 8 - 13 — New York, Second National Automobile Body Builders Show, Twelfth Regiment Armory, under the auspices of the Automobile Body Builders Association.

Jan. 27-Feb. 3—Chicago, Annual Automobile Salon.

Jan. 27 - Feb. 3 — Chicago, National Automobile Show, under auspices of National Automobile Chamber of Commerce, Coliseum and First Regiment Armory.

### FOREIGN SHOWS

Nov. 25-Dec. 4—London (Olympia), Cycle and Motorcycle Show. British Cycle Motors, The Tower, Warwick Road, Coventry.

Dec. 15 - Jan. 2 — Paris, Aeronautical Salon, Grand Palace. Chambre Syndicale des Industries Aeronautiques, 9 Rue Anatole de la Forge.

Jan. 13-24 — Brussels, Sixteenth International Automobile and Cycle Exposition, Palais du Conquantenaire.

April - July, 1923 — Gothenburg, Sweden, International Automobile Exhibition, Sponsored by the Royal Automobile Club of Sweden.

### RACES

May 10 — Berlin - Grunewald, German Grand Prix.

### CONVENTIONS

Dec. 6-8—St. Louis, Third Annual Meeting of the American Petroleum Institute, Hotel Statler.

Jan. 15-19—Chicago, Thirteenth American Good Roads Congress and Fourteenth National Good Roads Show.

Jan. 29 - 31 — Chicago, Annual Meeting, Automobile Electric Service Association, Congress Hotel.

### S. A. E. MEETINGS

#### Metropolitan Section

Dec. 14 — Speaker, Charles P. Grimes, Research Engineer, H. H. Franklin Manufacturing Co.; Subject, Air Cooling in Automotive Engines.

March 15—Speaker, William P. Kennedy, President, Kennedy Engineering Corp.; Subject, Trolley Buses and Flexible Vehicles for Street Railway Service.

April 19—Speaker, Edw. E. La Schum, General Superintendent, Motor Vehicle Equipment, American Railway Express Co.; Subject, Engineering Features of Fleet Operation.

May 17—Speaker, F. P. Gilligan, Secretary, Henry Souther Engineering Co., Subject, Metallic Materials for Automotive Work.

#### Other Meetings

Jan. 9 - 12 — New York, Annual Meeting.

Jan. 31 — Chicago Meeting and Dinner of the Society at the Congress Hotel.

## Bosch Magneto Case Dismissed by Court

WASHINGTON, Nov. 20—After more than a year's investigation by the Federal Government of the sale of the Bosch Magneto Co. by the former alien property custodian, the Government's suit to dissolve the sale has been dismissed by the District Criminal Court on the ground that no overt act was shown to have been committed and therefore is not within the jurisdiction of the local court.

The case was taken up by a District grand jury, who considered evidence tending to show that a conspiracy existed in the sale of the company, and the jury returned a verdict that the overt act complained of had been committed outside of the district, and therefore, upon advice of the attorney representing the Government, the grand jury was compelled to cease further investigation.

Assistant Attorney General H. J. Galloway and William M. Offley, who presented the testimony to the grand jurórs, declined to say where the Department of Justice would seek next to secure an indictment. The matter, however, will not be dropped, Galloway declared.

"The Government has ample evidence to prove that there was conspiracy in the sale of this valuable property and will press its suit to a conclusion," he declared.

## Sparks-Withington Acts As Host to A. E. A. Party

JACKSON, MICH., Nov. 18—The Sparks-Withington Co. was host to-day to a party of 150 men and women, including jobbers, officers of the Automotive Equipment Association, a number of business paper representatives and the wives of some of the guests. The visitors, who came here from the A. E. A. Convention at Chicago on a special train, watched the making of Sparton horns during the morning and in the afternoon were taken on another special train to Ann Arbor, where they witnessed the Michigan-Wisconsin football game.

The Sparks party had breakfast, lunch and dinner at the Jackson City Club, where an informal program of entertainment and speechmaking was a feature of the dinner party in the evening. Captain William Sparks acted as toastmaster and the speakers included Colonel Winthrop Withington, Major Philip H. Withington, Harry and Clifford Sparks, N. H. Oliver, president of the Automotive Equipment Association, and Howard M. Dine, past president. A number of the jobbers and other visitors also made brief remarks.

## Used and Open Car Sales Show Decline in Chicago

CHICAGO, Nov. 20—Retail sales of automobiles in Chicago have dropped off very perceptibly since the first of this month, used cars and open models being most seriously affected. A fairly good demand continues for closed models, and there are indications that a considerable number of such cars will be bought for Christmas gifts this year.

There is still plenty of interest in things automotive, and business is by no means at a standstill. In the week ending Nov. 11 there were 472 cars sold on deferred payments. This compares, however, with 645 such sales in the week ending Oct. 28 and an average of around 900 weekly throughout the summer. These figures are furnished by the Central Automobile Financing Association which compiles records of all time sales for which papers are filed.

Unusually mild and open weather continuing up to this time has greatly encouraged the use of automobiles this fall, and as a consequence maintenance work and the sale of equipment and accessories have enjoyed sustained prosperity.

## May Compel Owners to Take Insurance

PHILADELPHIA, Nov. 22—Recommendations for legislation for compulsory automobile liability insurance throughout Pennsylvania are to be formulated by a committee appointed at a meeting of the traffic division of the Philadelphia Chamber of Commerce, which was attended by 40 representatives of the principal insurance companies here. Compulsory insurance, it is said, would effect a reduction of 50 per cent in insurance charges.

At the meeting the statement was made that 80 per cent of the automobiles in the State do not carry insurance. This statement prompted an agreement on the possibility of grading insurance rates upon the basis of accident records. The creation of the special committee followed.

A meeting will be held in the near future at the Chamber of Commerce of representatives of automobile, civic and trade organizations in other lines, and the special committee at that time will submit a report.

### Committee Appointed

This committee, composed of five insurance men, is as follows: Walter J. Chase of Henry Brown & Co., C. C. Lippincott of the Hutchinson-Rivinus Co., F. G. Reese of the Pennsylvania Manufacturers' Association Casualty Insurance Co., W. A. McCrea of the Pennsylvania Indemnity Exchange and J. E. Van Dorn of the American Mutual Insurance Co.

The plan is to determine upon a course of action looking toward adopting methods for a graded insurance and the possibility of requiring the carrying of insurance by irresponsible car owners, dependent upon their records for safety, carelessness, etc., so that careful drivers need not be penalized for the carelessness of others.